



Installing the Virtual Services Platform 8600

Release 8.1 (VSP 8600)
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Contents

Chapter 1: About this Document	6
Purpose.....	6
Conventions.....	6
Text Conventions.....	6
Documentation and Training.....	8
Help and Support.....	9
Send Feedback.....	10
Chapter 2: New in this document	11
Chapter 3: Hardware fundamentals	12
Hardware Component Specifications and Part Numbers.....	12
VSP 8608 chassis.....	15
Cooling modules.....	17
IOC Modules.....	21
Channelization support.....	23
FEC configuration support	24
MACsec Encryption Cipher Suites.....	25
Switch fabric modules.....	25
Pluggable transceivers and DACs.....	27
AC and DC power supply fundamentals.....	27
Power calculator tool.....	28
Console port pin assignments.....	29
Airflow direction.....	29
Status LEDs.....	29
System status LEDs.....	29
Switch fabric LED status.....	30
RJ-45 10/100/1000 Mbps port LEDs.....	31
100 Mbps/1 Gbps/10 Gbps RJ-45 port LEDs.....	31
SFP/SFP+ port LEDs.....	32
QSFP+ port LEDs.....	32
QSFP28 port LEDs.....	32
Power supply LED status.....	33
EDM representation of physical LED status.....	33
Cable requirements.....	34
Electrostatic Discharge Preventative Measures.....	34
Electrostatic discharge preventative checklist.....	35
Preventing electrostatic damage in new cable installations.....	35
Package contents.....	35
Chapter 4: Technical specifications	37
VSP 8608 technical specifications.....	37

AC and DC Power Supply Specifications.....	38
Cooling module specifications.....	39
IOC and SF Module Technical Specifications.....	40
8624XT module specifications.....	40
8616QQ module specifications.....	41
8606CQ module specifications.....	42
8600SF module specifications.....	42
8624XS module specifications.....	43
Chapter 5: Preinstallation checklist.....	44
Chapter 6: Install the Switch and the Components.....	46
Checklist for installing the switch.....	46
Installing the chassis in an equipment rack.....	47
Installing an IOC or SF module.....	48
Grounding the chassis.....	51
Installing the power supply cover and cable management tray.....	53
Installing an AC power supply.....	55
Connecting an AC power supply.....	57
Installing a DC power supply.....	60
Chapter 7: Replace Components.....	63
Replacing a power supply.....	63
Replacing a cooling module.....	65
Replacing an IOC module.....	67
Replacing a switch fabric module.....	69
Chapter 8: Translations of safety messages.....	72
Definitions of Safety Symbols.....	72
Electric shock voltage statement.....	74
Electric shock multiple cord danger statement.....	76
Use power cords with grounding path danger statement.....	76
Cooling module fan safety danger statement.....	78
Laser eye safety danger statement.....	79
Laser eye safety connector inspection danger statement.....	80
Connector cleaning safety danger statement.....	81
Electrostatic discharge warning statement.....	82
Ensure adequate power source when using a single PSU.....	83
Disconnect power cord caution statement.....	85
Class A electromagnetic interference warning statement.....	86
Optical fiber damage warning statement.....	87
Optical fiber connector damage warning statement.....	88
Transceiver damage warning statement.....	90
Stacking devices warning statement.....	91
Empty cooling module bay warning statement.....	92
Empty module slot warning statement.....	93
Appendix A: Regulatory and Compliance Information.....	95

Federal Communications Commission (FCC) Notice.....	95
Industry Canada Notice.....	95
Class A ITE Notice.....	96
Klasse A ITE Anmerkung.....	96
Product Safety.....	96
Produktsicherheit.....	96
Korea EMC Statement.....	96
Electromagnetic Compatibility (EMC).....	96
Elektro-magnetische Kompatibilität (EMC).....	97
VCCI Notice.....	97
BSMI EMC Statement — Taiwan.....	97
CCC EMC Statement — China.....	97
Battery Warning — Taiwan.....	98
Battery Notice.....	98
Restriction of Hazardous Substances.....	98
Hazardous Substances	99
European Waste Electrical and Electronic Equipment (WEEE) Notice.....	99
Safety.....	99

Chapter 1: About this Document

This section discusses the purpose of this document, the conventions used, ways to provide feedback, additional help, and information regarding other Extreme Networks publications.

Related links

[Purpose](#) on page 6

Purpose

This document provides conceptual and installation information for Extreme Networks Virtual Services Platform 8600. This document also includes site preparation, environmental, component specifications, and safety requirements.

Related links

[About this Document](#) on page 6

Conventions

This section discusses the conventions used in this guide.

Text Conventions

The following tables list text conventions that can be used throughout this document.

Table 1: Notes and warnings


Icon	Notice type	Alerts you to...
	Tip	Helpful tips and notices for using the product.

Table continues...





Icon	Notice type	Alerts you to...
	Note	Useful information or instructions.
	Important	Important features or instructions.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.

Table 2: Text Conventions

Convention	Description
Angle brackets (< >)	<p>Angle brackets (< >) indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when you enter the command.</p> <p>If the command syntax is <code>cfm maintenance-domain maintenance-level <0-7></code>, you can enter <code>cfm maintenance-domain maintenance-level 4</code>.</p>
Bold text	<p>Bold text indicates the GUI object name you must act upon.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Click OK. • On the Tools menu, choose Options.
Braces ({ })	<p>Braces ({ }) indicate required elements in syntax descriptions. Do not type the braces when you enter the command.</p> <p>For example, if the command syntax is <code>ip address {A.B.C.D}</code>, you must enter the IP address in dotted, decimal notation.</p>
Brackets ([])	<p>Brackets ([]) indicate optional elements in syntax descriptions. Do not type the brackets when you enter the command.</p> <p>For example, if the command syntax is <code>show clock [detail]</code>, you can enter either <code>show clock</code> or <code>show clock detail</code>.</p>

Table continues...

Convention	Description
Ellipses (...)	<p>An ellipsis (...) indicates that you repeat the last element of the command as needed.</p> <p>For example, if the command syntax is <code>ethernet/2/1 [<parameter> <value>]...</code>, you enter <code>ethernet/2/1</code> and as many parameter-value pairs as you need.</p>
<i>Italic Text</i>	<p>Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles that are not active links.</p>
Plain Courier Text	<p>Plain Courier text indicates command names, options, and text that you must enter. Plain Courier text also indicates command syntax and system output, for example, prompts and system messages.</p> <p>Examples:</p> <ul style="list-style-type: none"> • <code>show ip route</code> • <code>Error: Invalid command syntax [Failed][2013-03-22 13:37:03.303 -04:00]</code>
Separator (>)	<p>A greater than sign (>) shows separation in menu paths.</p> <p>For example, in the Navigation tree, expand the Configuration > Edit folders.</p>
Vertical Line ()	<p>A vertical line () separates choices for command keywords and arguments. Enter only one choice. Do not type the vertical line when you enter the command.</p> <p>For example, if the command syntax is <code>access-policy by-mac action { allow deny }</code>, you enter either <code>access-policy by-mac action allow</code> or <code>access-policy by-mac action deny</code>, but not both.</p>

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- A description of the failure
- A description of any actions already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

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4. Select **Subscribe**.

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- Improvements that would help you find relevant information.
- Broken links or usability issues.

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Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Chapter 2: New in this document

There are no changes in this document.

Chapter 3: Hardware fundamentals

This chapter provides hardware specifications, chassis, and module details for Virtual Services Platform 8600.

Hardware Component Specifications and Part Numbers

The following table provides chassis component information.

VSP 8608 component information

Component	Description	Model number/part number
VSP 8608 chassis:		
Chassis ships with cooling fan modules installed. Note: The AC or DC power supply units ship separately. The AC power supply cords are ordered separately. For more information, see VSP 8608 chassis on page 15.	The 11 slot, 7U chassis provides the following vertically oriented modules, which come in a variety of port configurations. <ul style="list-style-type: none"> • Eight IOC module slots • Three SF module slots 	VSP 8608 chassis: <ul style="list-style-type: none"> • EC8602001-E6 • EC8602001-E6GS (Trade Agreements Act (TAA) compliant.)
Switch fabric modules:		
The chassis supports three switch fabric (SF) modules. The front panel of each SF module provides the following: <ul style="list-style-type: none"> • RJ-45 console port • LED indicators: <ul style="list-style-type: none"> - Pwr - Status For more information about switch fabric modules, see Switch fabric modules on page 25.	<ul style="list-style-type: none"> • 3.6 Tbps of fabric bandwidth for each module • T1024 dual core processor 	8600SF: EC8604001-E6:

Table continues...

Component	Description	Model number/part number
IOC modules:		
<p>The switch supports four I/O and control (IOC) module types.</p> <p>The front panel of each IOC module provides the following interfaces:</p> <ul style="list-style-type: none"> • RJ-45 console port • RJ-45 OOB Ethernet management port (supports 100/1000BASE-T). <ul style="list-style-type: none"> - Only active on the primary IOC module installed in slot 1 or slot 2. • USB port (Only active on the primary IOC module.) • LED indicators: <ul style="list-style-type: none"> - Pwr - Status - RPS - Fan <p>The IOC modules in slots 1 and 2 operate as primary and standby controller, in addition to being used for network connectivity purposes.</p> <p>For more information about IOC modules, see IOC Modules on page 21.</p>	24 port 1 /10 Gbps SFP+	8624XS: <ul style="list-style-type: none"> • EC8604002-E6 • EC8604002-E6GS (TAA compliant)
	24 port 100 Mbps/1 Gbps/10 Gbps RJ-45 copper	8624XT: <ul style="list-style-type: none"> • EC8604003-E6 • EC8604003-E6GS (TAA compliant)
	16 port 40 Gbps QSFP+	8616QQ: <ul style="list-style-type: none"> • EC8604004-E6 • EC8604004-E6GS (TAA compliant)
	6 port 100 Gbps QSFP28, 40 Gbps QSFP+	8606CQ: <ul style="list-style-type: none"> • EC8604005-E6 • EC8604005-E6GS (TAA compliant)
Cooling modules	<p>The chassis supports five cooling modules.</p> <p>For more information, see Cooling modules on page 17.</p>	Chassis ships with five cooling modules installed. Cooling module spare: EC8611001-E6
AC or DC power supplies (ordered separately):		
<ul style="list-style-type: none"> • 1U, installed directly to the backplane • 54-volt output • Power over Ethernet (PoE) isolation • Load sharing • I²C to read the identify and state of the power supply • Hot swappable • Filler panels provided but not a requirement 	AC power supply: 3000 W 100–240 VAC (power cord ordered separately)	EC8605A01-E6
	DC power supply: 2500 W DC DC power cord (ordered separately)	EC8605A02-E6 AA0020112-E6

Table continues...

Component	Description	Model number/part number
Power cords specifications (ordered separately):		
<p>+ Tip:</p> <p>It is recommended to use straight-ended power cords for use with the retention clip, and to avoid blocking other ports with third party right-angled cables.</p>		
<p>⚠ Danger:</p> <p>Use AC power cords that have a ground wire (if applicable). If you use power cords without a ground wire, ensure the switch is properly grounded before powering on the unit. Without a proper ground, you are in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.</p>		
North America <p>* Note:</p> <p>120 V power cords reduce available power from the power supply.</p>	Power cord 20 A/125 VAC NEMA 5-20	AA0020076-E6
	Power cord 15 A/250 VAC NEMA 6-15	AA0020077-E6
	Power cord 20 A/250 VAC NEMA L6-20 twist lock	AA0020083-E6
	Power cord 15 A/250 VAC NEMA L6-15 twist lock	AA0020087-E6
Continental Europe	Power cord 16 A/250 VAC CEE7/7	AA0020078-E6
Italy	Power cord 16 A/250 VAC CEI 23-50 S17	AA0020079-E6
Israel	Power cord 16 A/250 VAC SI 32	AA0020080-E6
India and South Africa	Power cord 15 A/250 VAC BS-546	AA0020081-E6
International	Power cord 16 A/230 VAC 3-pin IEC60309	AA0020082-E6
Australia	Power cord 15 A/250 VAC AS 3112	AA0020084-E6
United Kingdom and Ireland	Power cord 13 A/230 VAC BS 1362	AA0020085-E6
Greater China	Power cord 16 A/250 VAC GB 11918-86	AA0020086-E6
Brazil	Power Cord IEC C19 TO NBR 14136 (IEC 60906-1) (2.5 Meter 16 A/250 VAC)	AA0020102-E6
Pluggable transceivers and DACs	Transceiver types: <ul style="list-style-type: none"> • 100 Mbps 1/10 Gbps RJ-45 copper transceivers 	For information about the supported transceivers, BOCs, and DACs, see Extreme

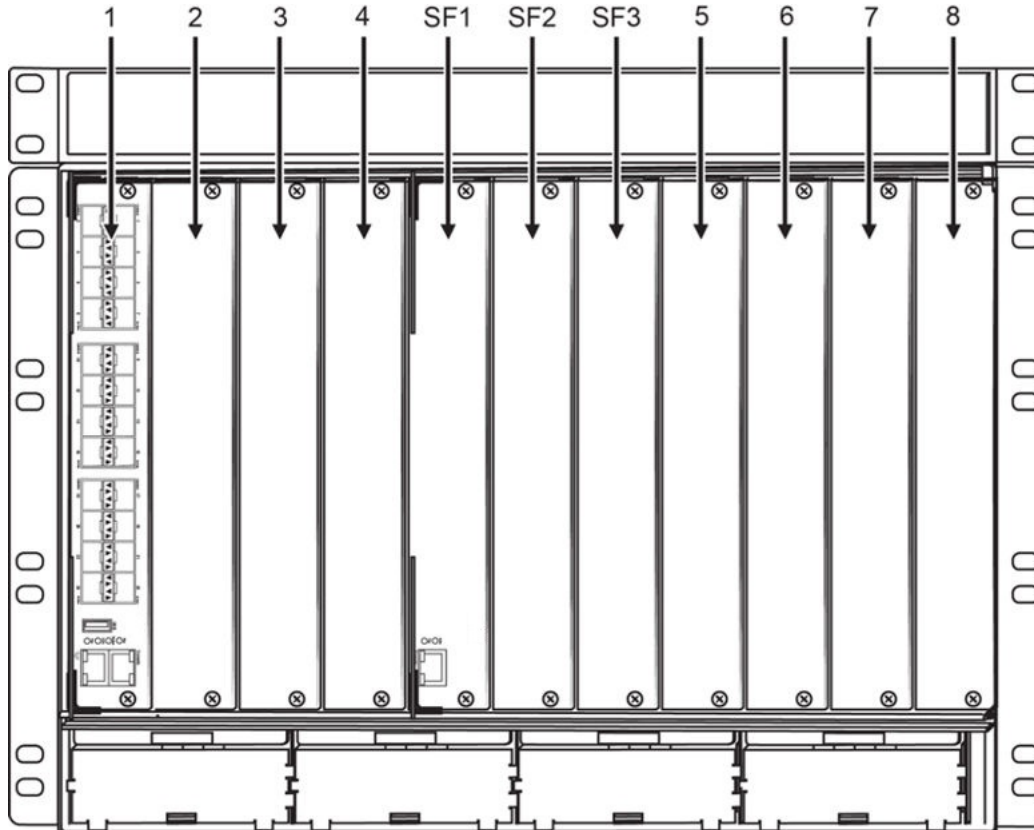
Table continues...

Component	Description	Model number/part number
	<ul style="list-style-type: none"> • 1 Gbps SFP transceivers • 10 Gbps SFP+ transceivers and DACs • 40 (4x10) Gbps QSFP+ transceivers and DACs • 100 (4x25) Gbps QSFP28 transceivers 	Networks Pluggable Transceivers Installation Guide .
Spares and filler panels	Cooling module spare	EC8611001-E6
	IOC module filler panel	EC8611002-E6
	Power supply filler panel	EC8611003-E6
Rack mount kit		EC8611004-E6
Cable guide kit	For cable management	EC8611005-E6
Power supply cover		EC8611006-E6

VSP 8608 chassis

The VSP 8608 chassis provides eight slots for I/O and control (IOC) modules and three slots for switch fabric (SF) modules in a 7U vertically oriented configuration. The chassis supports four power supplies, and includes five preinstalled cooling modules, each with 2x80 mm fans. For more information, see [Hardware Component Specifications and Part Numbers](#) on page 12.

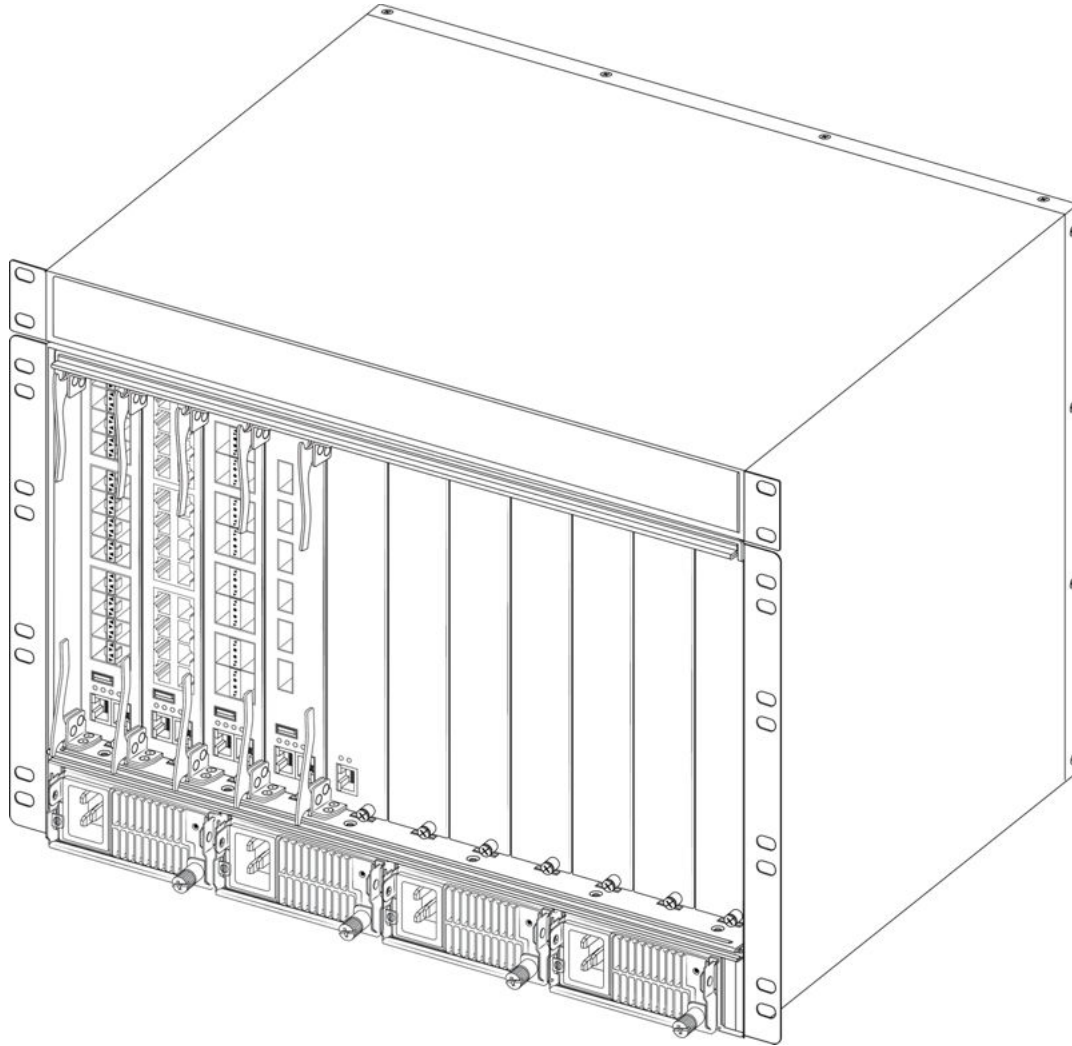
The following figure shows the slot designations for the VSP 8608 chassis. From left-to-right, slots 1 through 4 are designated for I/O and control (IOC) modules, followed by slots SF1 through SF3 for switch fabric modules, and then slots 5 through 8 for IOC modules.



Warning:

Keep the metal cover plate in place over empty module slots. An empty module slot allows air into the chassis, which reduces the negative pressure in the chassis. This reduces airflow to the installed modules.

The following figure shows an example of a populated VSP 8608 chassis with four IOC modules in slots 1 through 4, a switch fabric module in slot SF1, and four AC power supplies.



Cooling modules

The chassis includes five cooling module slots. The cooling modules plug directly into the backplane at the rear of the chassis. Each module contains 2 x 80 mm fans. The backplane connects the fan control signals to the I/O and control (IOC) slots.

*** Note:**

This document uses the term cooling module to refer to the cooling fans within the VSP 8608 chassis. The terms fan, fan tray, and cooling unit (CU) also refer to the cooling fans within the chassis.

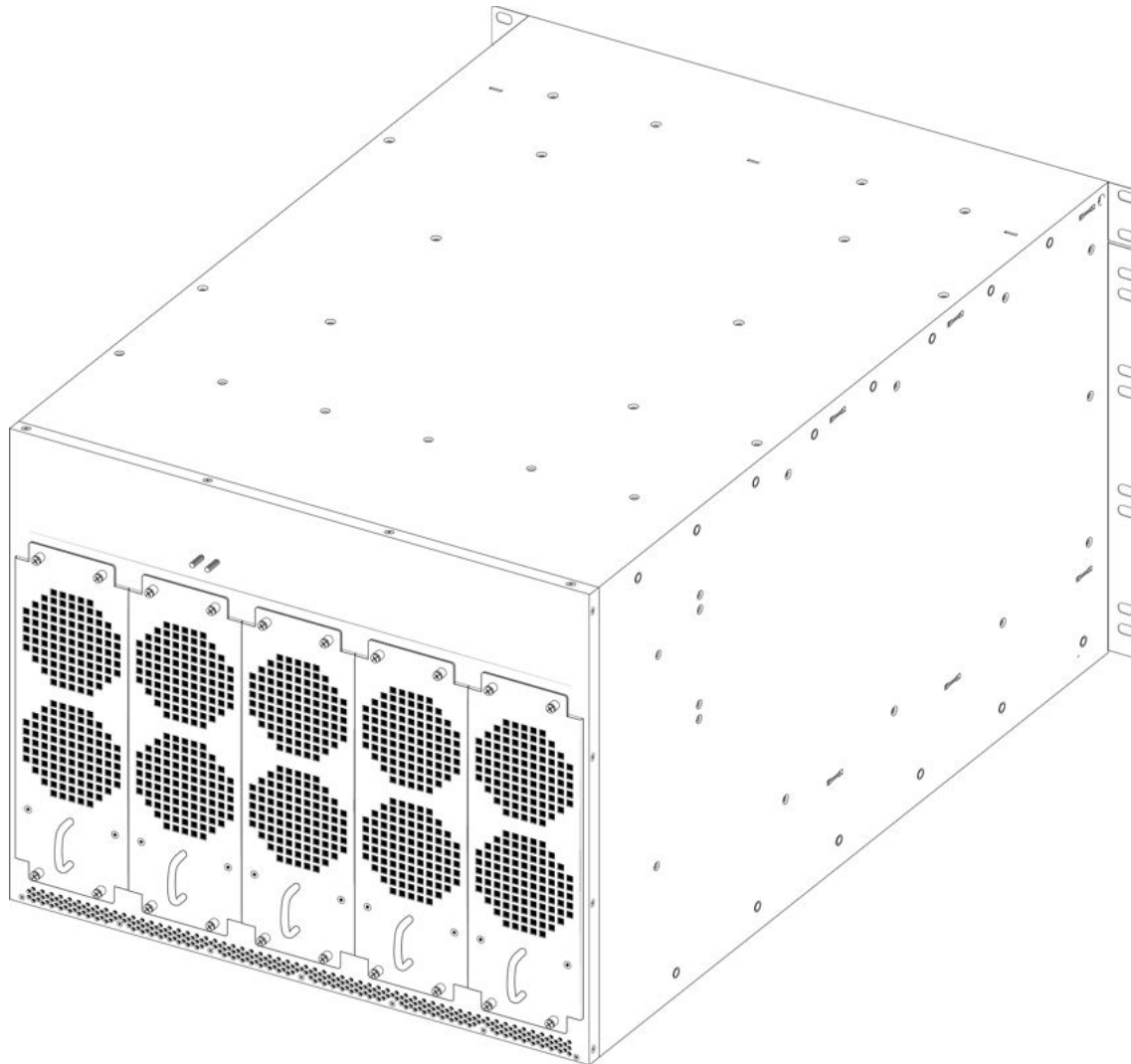
The following figure shows the rear of the chassis with five cooling modules. Facing the rear, the cooling modules are numbered CU1 through CU5 from left-to-right. The airflow direction is from

front-to-back. To ensure uniform airflow across all module slots, the fans in each cooling module create a negative pressure that is evenly distributed across an internal plenum.

⚠ Danger:

Risk of personal injury

When you remove a cooling module, allow time for the fans to spin down before you fully withdraw the cooling module. Be careful to keep your fingers out of the fan blades.



Fan speed

Inside the chassis, there are thermal sensors that monitor the temperature. The temperature readings of the sensors send information to the central controller that automatically adjusts the cooling module fan speed to maintain the proper temperature. For example, when the temperature reading of the sensors decreases, the cooling module fan speed also decreases, which helps to minimize fan noise. However, if one of the cooling modules fail or is temporarily removed, the speed of the other cooling modules increase to their maximum rotational speed, which provides maximum cooling to the chassis. The chassis can operate with a single cooling module failure and still

maintain uniform airflow across all module slots. When all cooling modules are operational, the internal temperature sensors determine the speed of the fans.

 **Warning:**

Do not operate a chassis for more than a few minutes with a missing cooling module. To ensure internal chassis air pressure is maintained and to avoid loss of traffic due to modules overheating and shutting down, leave a failed cooling module installed until you have a replacement.

Alarms are triggered when the temperature exceeds the following alarm thresholds—Warning, Critical, and Shutdown.

 **Note:**

%d represents a number for either a sensor, slot, or temperature.

The following list shows the log messages for the three threshold types:

- Warning—Temperature Sensor *%d* is (*%d* C) has exceeded the alarm threshold temperature (*%d* C).
- Critical—Sensor *%d* slot *%d* temperature (*%d* C) exceeded the critical alarm threshold (*%d* C). Module will be shut down at (*%d* C).
- Shutdown—Sensor *%d* in slot *%d* temperature (*%d* C) exceeded the shutdown threshold temperature (*%d* C). Module has been powered down.

Alarms are cleared when the temperature cools by 2° below the threshold temperature. The following list shows the log messages when an alarm is cleared:

- Critical threshold—Sensor *%d* in slot *%d* overheat critical alarm cleared
- Warning threshold—Temperature Sensor *%d* overheat temperature alarm cleared

You can use the following command to monitor current temperature, and view the threshold values for Warning, Critical, and Shutdown.

```
show sys-info temperature
```

The following table provides a description of the various threshold limits:

Table 3: Alarm thresholds

Value	Description
Sensor Index	Specifies sensor IDs from 1 to 5. There are five sensors on each module.
Current temperature	Specifies the current temperature sensor reading.
Warning threshold	Specifies the temperature at which an alarm is raised.
Critical threshold	Specifies the point at which a log message is generated. Action must be taken at this point otherwise the module is at risk of reaching the shutdown threshold.
Shutdown threshold	Specifies the critical maximum value where the module shuts down.

Table continues...

Value	Description
	<p>* Note:</p> <p>If a module enters a shutdown state, upon return to normal state, the module must be powered on.</p> <p>Normal state is when the temperature is below the Warning threshold value, and there is no alarm on the system.</p> <p>! Important:</p> <p>In a situation where there is a single module in either IOC slot 1 or 2 that runs the control plane (CP) software and the module reaches the maximum value, the switch shuts down. If redundancy is in place where there are modules in both IOC slots 1 and 2, and one of these modules reaches the maximum value, the switch remains operational.</p>

Example

The following table shows an example of the threshold values for each temperature sensor in degrees Celsius (° C):

```
VSP8608-1:1>show sys-info temperature

Temperature Info :

Card      Card      Sensor  Sensor  Current  Warning  Critical  Shutdown
Index Description Index  Description Temperature Threshold Threshold Threshold
1 8624XT 1 CPU 47 90 100 105
1 8624XT 2 MAC 49 100 105 110
1 8624XT 3 PHY/POLL 50 60 65 70
1 8624XT 4 MAC2 64 100 105 110
1 8624XT 5 CPU2 58 90 100 105
2 8624XS 1 CPU 42 90 100 105
2 8624XS 2 MAC 42 100 105 110
2 8624XS 3 PHY/POLL 45 60 65 70
2 8624XS 4 MAC2 54 100 105 110
2 8624XS 5 CPU2 53 90 100 105
4 8606CQ 1 CPU 36 90 100 105
4 8606CQ 2 MAC 46 100 105 110
4 8606CQ 3 PHY/POLL 34 60 65 70
4 8606CQ 4 MAC2 62 100 105 110
4 8606CQ 5 CPU2 49 90 100 105
SF 1 8600SF 1 CPU 34 90 100 105
SF 1 8600SF 2 MAC 58 100 105 110
SF 1 8600SF 3 PHY/POLL 43 70 75 80
SF 1 8600SF 4 MAC2 77 100 105 110
SF 1 8600SF 5 CPU2 44 90 100 105
SF 2 8600SF 1 CPU 34 90 100 105
SF 2 8600SF 2 MAC 58 100 105 110
SF 2 8600SF 3 PHY/POLL 43 70 75 80
SF 2 8600SF 4 MAC2 78 100 105 110
SF 2 8600SF 5 CPU2 44 90 100 105
```

Each cooling module contains two fans. Use the following command to monitor the status of each fan in all five cooling modules:

```
show sys-info fan

VSP8608-1:1>show sys-info fan
Tray      Unit      CurrSpeed  AirflowType Temperature Status
1         1         REGULAR    F2B         27         OK
```

1	2	REGULAR	F2B	27	OK
2	1	REGULAR	F2B	27	OK
2	2	REGULAR	F2B	27	OK
3	1	REGULAR	F2B	28	OK
3	2	REGULAR	F2B	28	OK
4	1	REGULAR	F2B	29	OK
4	2	REGULAR	F2B	29	OK
5	1	REGULAR	F2B	29	OK
5	2	REGULAR	F2B	29	OK

IOC Modules

The input/output and control (IOC) modules occupy slots 1 through 4 and slots 5 through 8.

The front panel on each IOC contains an RJ-45 console port, OOB Ethernet management port, USB port, and status LED indicators.

Electrostatic alert:

Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

Warning:

Keep the metal cover plate in place over empty module slots. An empty module slot allows air into the chassis, which reduces the negative pressure in the chassis. This reduces airflow to the installed modules.

You can power on the chassis before or after the modules are installed. However, you must have an IOC module in either slot 1 or slot 2 for the system to operate. For redundancy purposes, you must have an IOC module in both slots 1 and 2. The IOC modules in slots 1 and 2 run control plane (CP) software, as well as I/O software for the local ports on the IOC module. The modules are hot swappable. Install a filler panel in any unpopulated IOC slot.

Note:

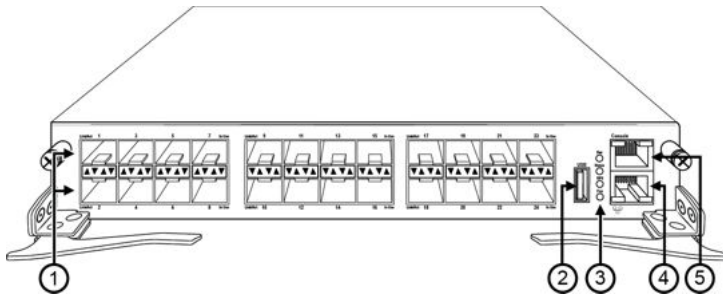
For part numbers (including Trade Agreement Act (TAA) compliant part numbers), see [Hardware Component Specifications and Part Numbers](#) on page 12.

The chassis supports the following IOC modules:

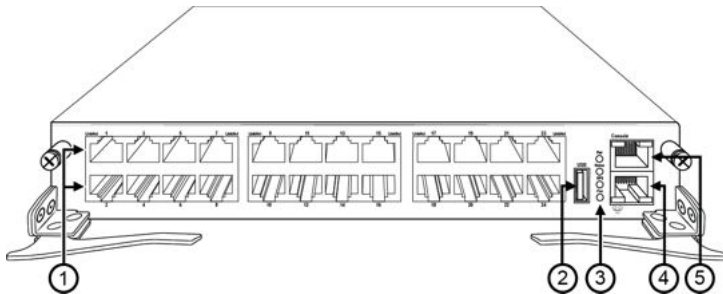
Important:

The IOC modules in the following figures are shown in a horizontal position for description purposes only. The IOC modules install vertically in the chassis.

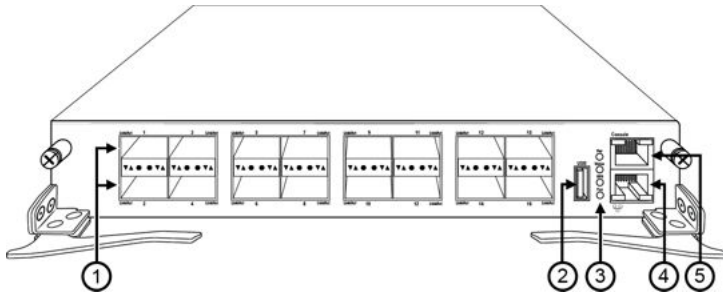
8624XS



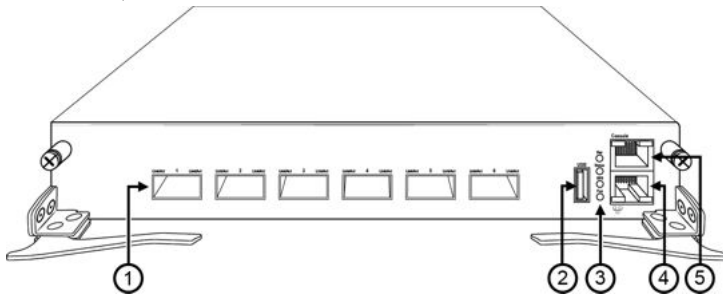
8624XT



8616QQ




8606CQ



The following table provides a description of the ports and LED indicators for all IOC models, as shown in the preceding figures:


No.	Model numbers and description
1	8624XS: 24 port 1/10 Gbps SFP+ fiber ports
	8624XT: 24 port 100 Mbps/1 Gbps/10 Gbps RJ-45 copper ports

Table continues...

No.	Model numbers and description
	8616QQ: 16 port 40 Gbps QSFP+ ports, ports 1–4 support channelization
	8606CQ: 6 port 100 Gbps QSFP28 ports, 40 Gbps QSFP+ ports, all 6 ports support channelization
2	USB port. The USB port is only active on the primary IOC module.
3	<p>LED status indicators:</p> <ul style="list-style-type: none"> • PWR—system power • Status—switch status • RPS—redundant power supply • Fan—cooling modules <p> Note: LEDs are only operational on the primary IOC module.</p>
4	RJ–45 out-of-band (OOB) management port. The management port is only active on the primary IOC module.
5	RJ–45 serial console port. Default baud rate is 115200 bps.

MACsec Support for IOC Modules

The following table identifies the IOC modules that offer hardware and software MACsec support.

IOC Module	Software MACsec Support	Hardware MACsec support	Encryption Support
8624XS	Yes	Yes	128bit
8624XT	No	Yes	128bit
8616QQ	No	No	N/A
8606CQ	Yes	<p>Yes</p> <p> Note: MACsec is also supported when channelization is enabled in VSP 8600 Series Release 8.1 and later.</p>	128bit and 256bit

Channelization support

Channelization allows you to configure a single port to operate as four individual ports. Channelization can apply to the following port speeds:

- 40 Gbps (QSFP+) — when channelized, operates as four 10 Gbps ports
- 100 Gbps (QSFP28) — when channelized, operates as four 25 Gbps ports

Channelization on the 8616QQ module

The 8616QQ module supports channelization on the first four ports only. By default, the ports are not channelized, which means that the 40 Gbps QSFP+ ports operate as 40 Gbps ports. You can enable or disable channelization on any of the first four ports. Ports 5-16 do not support channelization.

Channelization enables you to configure 40 Gbps QSFP+ ports to operate as four separate 10 Gbps ports. You can use either 40GBASE-CR4 (copper) or 40GBASE-SR4 (fiber) breakout cables to connect the 10 Gigabit Ethernet ports to other servers, storage devices, and switches. For breakout cable details, see [Extreme Networks Pluggable Transceivers Installation Guide](#).

Channelization on the 8606CQ module

The 8606CQ module supports channelization on all six 100 Gbps ports. The channelized port can operate as four 25 Gbps ports if QSFP28 cables are used or four 10 Gbps ports if QSFP+ cables are used. This allows the 100 Gbps port to operate as a 40 Gbps port with the sub-ports operating at 10 Gbps speed. You can use 40GBASE-CR4 (copper) or 40GBASE-SR4 (fiber) or 100GBASE-CR4 (copper) or 100GBASE-SR4 (fiber) breakout cables to connect the 40/100 Gigabit Ethernet ports to other servers, storage devices, and switches.

By default, the ports are not channelized. If channelization is not enabled, the ports display the existing port format as “slot/port”. Once channelization is enabled, ports display the format as “slot/port/sub-port” in the input/output.

MACsec is supported on the channelized 10G/25G ports on the 8606CQ in VSP 8600 Series Release 8.1 and later.

Considerations

- 10 Gbps ports may indicate a link up state error, which represents a misconfiguration and can create a black hole for packets. This can only happen if all of the following conditions are true:
 - A QSFP+ with a fiber breakout cable is installed in a 40 Gbps port.
 - The 40 Gbps port connected to the breakout cable is not yet channelized.
 - The 40 Gbps port is administratively up.
 - Any, or all, of the 10 Gbps ports connected to the other end of the breakout cable are administratively up.

To avoid this error, set the 40 Gbps port to administratively down prior to installing the channelization breakout cable.

FEC configuration support

Configure Forward Error Correction (FEC) on a port to obtain error control in data transmission over an unreliable or noisy channel. You can configure FEC on 100 Gbps ports or on channelized 100 Gbps ports operating at 25 Gbps speed.

The following FEC options are supported:

- Clause 91
- Clause 108

- Clause 74

FEC configuration on the 8606CQ module

The 8606CQ module supports FEC configuration on all six 100 Gbps ports and on channelized 100 Gbps ports operating at 25 Gbps speed. On a 100 Gbps port, only the Clause 91 and Clause 108 options are supported. On the channelized ports, you can configure either Clause 108 for extra latency or Clause 74 for reduced latency.

FEC is not supported on a 100 Gbps port operating at 40 Gbps speed or on a management port.

Important:

On ports that support FEC configuration, ensure that you configure the same option at both endpoints. Otherwise, the link does not come up.

MACsec Encryption Cipher Suites

The 8606CQ module supports configuration of a cipher suite for MACsec encryption. You can configure either the GCM-AES-128 cipher suite with a maximum key length of 128 bits, or the GCM-AES-256 with a maximum key length of 256 bits. The default cipher suite is the GCM-AES-128. The 256-bit algorithm provide enhanced security and includes the security provided by the 128-bit algorithm.

Note:

You can also configure a MACsec cipher suite on a channelized port of the 8606CQ module in VSP 8600 Series Release 8.1 and later.

Switch fabric modules

The three center slots are dedicated to switch fabric (SF) modules. Two SF modules provide enough switching bandwidth to accommodate all the populated modules (including the highest speed modules). The control processors (CP) on the SF modules provide functions such as fabric initialization and multicast table updates on the SF.

The processors located in IOC slots 1 and 2 use a gigabit-Ethernet connection to communicate with the switch fabric modules in slots SF1 through SF3. The modules are hot swappable.

The number of SF modules that you require for redundancy depends on the types of modules installed. Use the following examples to provide a guide for redundancy:

- If you have installed only 24 port, 10 Gbps IOC modules, you require two SF modules to provide 1+1 redundancy, where one SF module supports the bandwidth and the second SF module provides redundancy.
- If you have higher speed IOC modules (40 Gbps and 100 Gbps), you require two SF modules to support the bandwidth and a third SF module to provide 2+1 redundancy.

*** Note:**

For the part number (including Trade Agreement Act (TAA) compliant part number), see [Hardware Component Specifications and Part Numbers](#) on page 12.

⚠ Electrostatic alert:

Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

⚠ Warning:

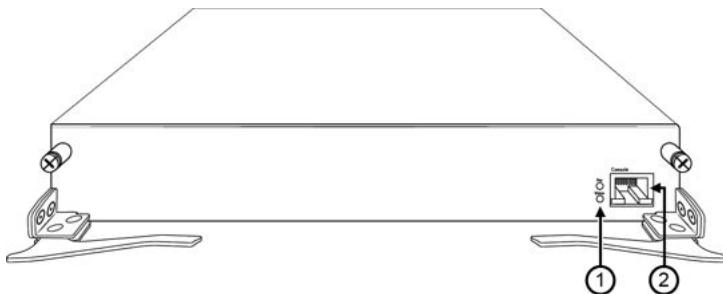
Keep the metal cover plate in place over empty module slots. An empty module slot allows air into the chassis, which reduces the negative pressure in the chassis. This reduces airflow to the installed modules.

8600SF

The chassis supports the following switch fabric module:

! Important:

In the following figure, the switch fabric module is shown in a horizontal position for description purposes only. The switch fabric modules install vertically in the chassis.



The following table provides a description of the LED indicator and port for the switch fabric module, as shown in the preceding figure:

No.	Model number and description
	8600SF: 3.6 Tbps of fabric bandwidth
1	LED status indicators: <ul style="list-style-type: none"> • Pwr—system power • Status—switch status
2	RJ-45 serial console port

Pluggable transceivers and DACs

VSP 8600 switches support QSFP+ transceivers on all 8616QQ IOC module ports. QSFP+ transceivers can also be used for 8606CQ IOC module ports; however, when you use the QSFP+ transceivers on 8606CQ IOC module ports, the port operates at 40 Gbps speeds.

For information about supported optical transceivers, see [Extreme Networks Pluggable Transceivers Installation Guide](#).

Port channelization

For ports that use channelization, use only breakout cables (copper direct attach cables (DAC) or fiber). Otherwise, the link behavior can be unpredictable due to mismatched link status between link partners, which can lead to additional network issues.

For non-channelized ports, do not use breakout cables.

AC and DC power supply fundamentals

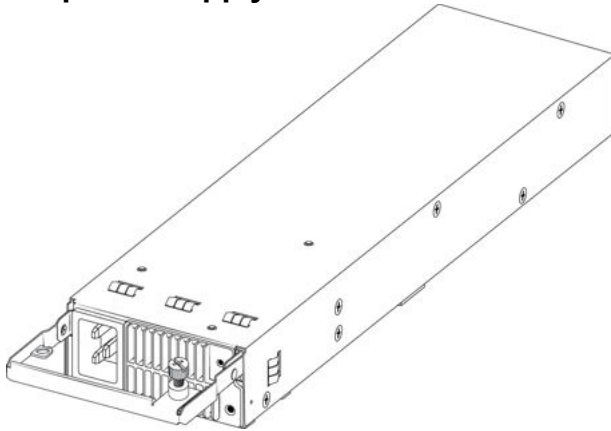
The chassis supports four 3,000 watt AC power supply units or 2,500 watt DC power supply units. Each power supply is self enclosed and vents directly to the rear of the chassis; therefore, empty power supply bays do not need a filler panel. If the chassis has more than one power supply installed, you can hot swap a power supply on an operational switch.

You require one power supply to operate the chassis; however, the system software prevents some of the IOC modules from entering a fully operational state if there is insufficient power available. As you populate the chassis with more modules, additional power supplies might be required. Use the Power Calculator tool to assist with calculating the power available versus the power load.

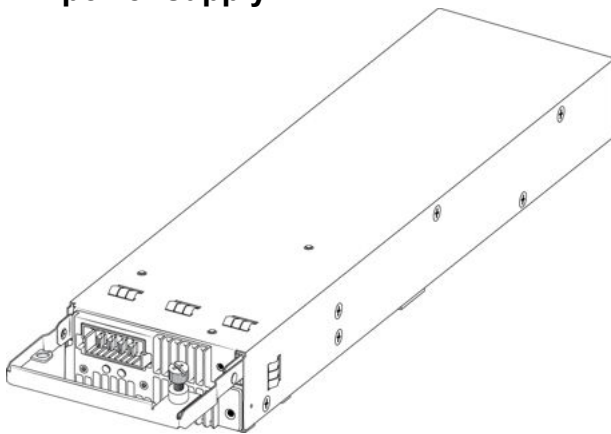
Caution:

Use the power calculator to determine if your AC power supply units (PSU) provide the correct power capacity for your chassis configuration. In situations when your switch is heavily populated, it is preferred that you connect to a 240–VAC power source to provide each AC PSU with up to 3,000 watts. Or, in situations when your switch is lightly populated, you can connect to a 120–VAC power source to provide each AC PSU with approximately 1,400 watts.

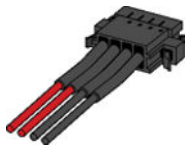
AC power supply



DC power supply



DC power cable:



Power calculator tool

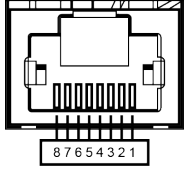
Use the power supply calculator tool to help you determine the power requirement when configuring the chassis, I/O and control (IOC) modules, switch fabric modules, optical transceivers, and power supplies. This tool can be used to calculate the available power from the power supplies and the power consumption for each IOC and each populated port. The results provide typical and maximum power consumption, which helps you to determine your power reserve (power margin) to ensure you do not exceed the maximum power allotted for all power supplies.

! Important:

You require a basic knowledge of the various transceiver types and quantities used with each line card. This tool does not alert you if port devices are incorrectly selected for a card or if incorrect quantities of port devices are selected.

Console port pin assignments

The following table provides the supported console port pin assignments for the RJ-45 connectors.

Pin number	Signal	Requirement	Connector
1	Ready to send (RTS)	Optional	
3	Transmit data (TXD)	Mandatory	
5	Ground (GND)	Mandatory	
6	Receive data (RXD)	Mandatory	
8	Clear to send (CTS)	Optional (can swap or link with pin 1)	

Airflow direction

The airflow direction is front-to-back. Air enters through the front panel on each module and is exhausted through the rear of the chassis.

Status LEDs

The following section provides information about the LED states for the various modules.

System status LEDs

The primary I/O and control (IOC) module provides the overall system status LEDs for the chassis, switch fabric modules, and IOC modules.

*** Note:**

Although all the modules contain LEDs, only the primary module in slot 1 reports on the overall system state. If the primary module in IOC slot 1 fails, the standby module in slot 2 provides failover, and takes the role as the primary module.

LED	State	Description
PWR	Off	No power and not operational.
	Green (steady)	Power is provided to the switch through either the primary or secondary power supply.
	Green (blinking)	The switch is resetting.
Status	Off	No power and not operational.
	Amber (steady)	The diagnostic software is running and an error has been encountered.
	Amber (blinking)	Normal boot process. The switch is loading and executing the boot loader or diagnostic software.
	Green (steady)	The switch is in normal operational mode. The agent software code has been loaded.
	Green (blinking)	The switch is loading the agent software code.
	Amber/green (alternating)	The switch is serving as the secondary control processor (CP), and is in standby mode.
RPS (redundant power supply)	Off	System is operating with a single power supply.
	Amber (steady)	A power supply which was previously operational has been removed from the system.
	Amber (blinking)	A power supply is present but not providing any internal power to the switch.
	Green (steady)	System has more than one power supply and all are operating normally.
	Green (blinking)	A power supply has its input disconnected.
Fan	Amber (steady)	A fan has been removed.
	Amber (blinking)	A fan has failed.
	Green (steady)	All fans are operating normally.

Switch fabric LED status

LED	State	Description
PWR	Off	No power and not operational.
	Green (steady)	Power is provided to the switch through either the primary or secondary power supply.
	Green (blinking)	The switch is resetting.
Status	Off	No power and not operational.
	Amber (steady)	The diagnostic software is running and an error has been encountered.
	Amber (blinking)	Normal boot process. The switch is loading and executing the boot loader or diagnostic software.

Table continues...

LED	State	Description
	Green (steady)	The switch is in normal operational mode. The agent software code has been loaded.
	Green (blinking)	The switch is loading the agent software code.

RJ-45 10/100/1000 Mbps port LEDs

The RJ-45 port uses two bicolored (amber and green) LEDs to indicate the activity and speed of the link.

- The left bicolored LED (Speed) indicates the current speed of the port.
- The right bicolored LED (Link/Act) indicates the state of the link and whether it is active.

Port label	Color and state	Description
Speed	Off	The port is operating at 10 Mbps.
	Amber (steady)	The port is operating at 100 Mbps.
	Green (steady)	The port is operating at 1 Gbps.
Link/Activity	Off	Not applicable.
	Amber (steady)	The port link is administratively disabled.
	Amber (blinking)	The port is not in use.
	Green (steady)	The port has link established and there is no data activity.
	Green (blinking)	The port has link established and has data activity.

100 Mbps/1 Gbps/10 Gbps RJ-45 port LEDs

The RJ-45 port uses a single tricolored (amber, green, and blue) LED.

LED	Color and state	Description
Link/Activity	Off	The port does not have link.
	Amber (steady)	The port link and data activity is in 100 Mbps mode.
	Amber (blinking)	The port link is in 100 Mbps mode.
	Green (steady)	The port link is in 1 Gbps mode.
	Green (blinking)	The port link and data activity is in 1 Gbps mode.
	Green (slow blinking)	The port is administratively disabled.
	Blue (steady)	The port link is in 10 Gbps mode.
	Blue (blinking)	The port link and data activity is in 10 Gbps mode.

SFP/SFP+ port LEDs

The SFP/SFP+ port uses two bicolored (amber and green) LEDs to indicate the activity and speed of the link.

- The left bicolored LED (Link/Act) indicates the state of the link and whether it is active.
- The right bicolored LED (In Use) indicates the current speed of the port.

LED	Color and state	Description
In Use	Off	Operating at low speed (10 Mbps if SFP, 100 Mbps if SFP+).
	Green (blinking)	Operating at mid speed (100 Mbps if SFP, 1 Gbps if SFP+).
	Green (steady)	Operating at high speed (1 Gbps if SFP, 10 Gbps if SFP+).
Link/Activity	Off	No SFP/SFP+ is present.
	Amber (blinking)	Remote fault (RFI received).
	Amber (steady)	Port is active. TX port active. No Link (local fault).
	Green (steady)	Link is operational.
	Green (blinking)	Link and activity.
	Green (slow blinking)	The port has been disabled by software.

QSFP+ port LEDs

QSFP+ supports 40 Gbps or 4X10 Gbps operation. Channelized mode supports four status LEDs (one for each channel) and nonchannelized mode supports only the topmost LED.

LED	State	Description
Link/Activity	Off	No QSFP+ is present.
	Amber (blinking)	Remote fault (RFI received).
	Amber (steady)	Port is active. TX port active. No Link (local fault).
	Green (steady)	Link is operational.
	Green (blinking)	Link and activity.
	Green (slow blinking)	The port has been disabled by software.

QSFP28 port LEDs

QSFP28 supports 100 Gbps or 4X25 Gbps operation. Channelized mode supports four status LEDs (one for each channel) and non-channelized mode supports only the topmost LED.

LED	Color and state	Description
Link/Activity	Off	No QSFP28 is present or no cable is attached.
	Alternating amber/green/ amber/green (blinking)	Fault.
	Green (steady)	Link is operational (in 100 Gbps or 4X25 Gbps mode).
	Green (blinking)	Link and activity (in 100 Gbps or 4X25 Gbps mode).
	Green (slow blinking)	The port has been disabled by software (in 100 Gbps or 4X25 Gbps mode).
	Amber (steady)	Link is operational (in 40 Gbps or 4X10 Gbps mode).
	Amber (blinking)	Link and activity (in 40 Gbps or 4X10 Gbps mode).
	Amber (slow blinking)	The port has been disabled by software (in 40 Gbps or 4X10 Gbps mode).

Power supply LED status

The following table provides power supply LED status for AC and DC power supplies.

*** Note:**

The state of operation can only be determined by viewing the LED state at the front of the power supply.

AC and DC power supplies		LED indicator	
	Description	LED 1 Input OK	LED 2 Temp/DC OK/Fault
1	Normal operation/Remote on	Green (steady)	Green (steady)
2	Input out of range	Green (blinking)	Off
3	No input	Off	Off
4	Over voltage/Over temp fault	Green (steady)	Red (steady)
5	Over current	Green (steady)	Green (blinking)
6	Over temp warning	Green (steady)	Red (blinking)
7	Output off/Remote off	Green (steady)	Off

EDM representation of physical LED status

Enterprise Device Manager (EDM) displays the same LEDs that you see on the physical device.

*** Note:**

LED blinking in EDM is representative of, but not identical to, the actual LED blinking rates on the switch.

For more information about the LEDs and a description of the blinking rates, see the preceding LED section.

Cable requirements

Table 4: Switch cables

Cable type	Description
10/100/1000BASE-T ports	The interconnect cabling must conform to the Cat5e, Cat6, or Cat6e specification of the Commercial Building Telecommunications Cabling Standard, ANSI/TIA/EIA 568-B fitted with an RJ-45 module jack.
Console ports	Cables are hot swappable. Cable conforms to RS-232 standard. RJ-45 console port cable: Maximum length is 50 feet (15.2 meters).
SFP, SFP+, QSFP+, QSFP28 transceiver ports	Varies with the installed transceiver. For specifications, see the documentation shipped with the transceiver.
Direct attach cables or breakout cables	For more information, see Extreme Networks Pluggable Transceivers Installation Guide .
Electrostatic discharge (ESD) cables	Required to connect the ground lug on the ESD discharge cable to an earth ground.

Electrostatic Discharge Preventative Measures

Electrostatic discharge (ESD) is a discharge of stored static electricity that can damage equipment and impair electrical circuitry. Electrostatic voltages can result from friction, such as, pulling cabling through conduits, walking across carpeted areas, and building static charge in clothing. If you improperly handle electronic components, ESD damage occurs and can result in complete or intermittent failures. While networking equipment is commonly designed and tested to withstand common mode ESD events, voltage can sometimes discharge to some connector pins, which can potentially damage the networking equipment.

Electrostatic discharge preventative checklist

To avoid ESD damage, review the following checklist.

No.	Task	Description	✓
1	Wear a grounding wrist strap or other static-dissipating device.	Make sure you adjust the strap to provide good skin contact.	
2	Ensure that you properly ground work surfaces and equipment racks.	Connect the common point to the building ground wire. In a properly wired building, the nearest reliable ground is typically at the electrical outlet.	
3	Avoid contact between equipment and clothing.	The wrist or ankle strap protects only the equipment from ESD voltages on the body; ESD voltages on clothing can still cause damage.	
4	Avoid touching any connector pins.	—	
5	Do not remove the wrist or ankle strap until the installation is complete.	—	
6	Use an ESD cable for new cable installations.	See Preventing electrostatic damage in new cable installations on page 35.	

Preventing electrostatic damage in new cable installations

Static can build up in cables. It is recommended that you use an ESD cable for new cable installations to reduce potential networking equipment damage from static.

Procedure

1. Connect the ground lug on the ESD cable to a safe and suitable earth ground.
2. Connect all RJ-45 cable connectors to the female RJ-45 connector of the ESD cable for at least 5 seconds, and then connect each RJ-45 cable connector to the switch.
3. Leave cables connected to the networking equipment. After you connect cables to networking equipment, the cables do not build up charge.

Package contents

The following table provides an itemized list of the contents that are shipped with each switch. If any components are missing or damaged, go to the Extreme Networks support website at <http://www.extremenetworks.com/support/documentation/>.

Hardware fundamentals

1	Cooling modules (preinstalled).
2	Two-hole grounding cable lug for threaded ground posts (1) with lock washer and nut for each ground post (2).
3	Screws to secure the chassis to the rack (6).
4	Cable management tray
5	Five field-replaceable cooling modules (preinstalled).
6	Installation documentation (poster).

Chapter 4: Technical specifications

This chapter provides the physical, electrical, and environmental requirements for the switch. Ensure the installation site meets these physical requirements.

This chapter also provides specification details for the AC and DC power supplies, cooling modules, and I/O and control (IOC) and switch fabric (SF) modules.

VSP 8608 technical specifications

Table 5: Physical specifications

Chassis dimensions:		<ul style="list-style-type: none"> • Height: 12 inches (30 cm) – 7U • Width: 17.5 inches (44 cm) • Depth: 24 inches (61 cm) <p>Includes screws to attach the chassis flange to the equipment rack.</p> <p>* Note:</p> <p>The chassis is designed to fit in a 19 inch (48 cm) equipment rack. The depth must not exceed 24 inches (61 cm).</p> <p>The highly scalable chassis delivers 10.8 Tbps of throughput.</p>			
Chassis weight	Unpopulated	70 pounds (31.8 kg)			
	Shipping weight	106.1 pounds (48.13 kg)			
Number of vertical slots		11			
Component placement (device direction)		Modules connect directly to the backplane in a vertically oriented configuration.			
Ground connections		A two-post compression ground connection is located at the rear of the chassis			
Specifications for accessories:		Height:	Width:	Depth:	Weight:
IOC module filler panel		1.54 in. (3.9 cm)	9.5 in. (24.2 cm)	17.0 in. (43.3 cm)	2.35 lbs (1.07 kg)
Power supply filler panel		1.75 in. (4.4 cm)	4.2 in. (10.7 cm)	2.4 in. (6.0 cm)	0.25 lb (0.11 kg)

Table continues...

Cable guide kit	1.6 in. (4.1 cm)	17.3 in. (44 cm)	2.0 in. (5.2 cm)	0.85 lb (0.39 kg)
Power supply cover	1.9 in. (4.7 cm)	17.6 in. (44.7 cm)	3.7 in. (9.5 cm)	N/A

Table 6: Electrical specifications

MTBF rating (chassis):	984,074 hours
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Table 7: Environmental specifications

Operating temperature	0° C to 45° C Altitude 0 to 10,000 ft.
Storage temperature	−40° C to 85° C (−40° F to 185° F)
Operating humidity	0% to 95% noncondensing
Storage altitude	0 to 10,000 feet
Chassis airflow	Front-to-back airflow direction.
Miscellaneous operating considerations	<ul style="list-style-type: none"> • Keep switch away from heat sources, such as hot air vents or direct sunlight. • Keep switch away from sources of severe electromagnetic interference. • Ensure the environment is free from excessive dust. • Ensure the switch is within range of a power source. Each power supply requires one 15-ampere circuit. • Ensure proper ventilation. Provide a minimum 2 inch (5.08 centimeters) clearance at the front and back of the switch. • Dress cables to ensure proper air flow.

AC and DC Power Supply Specifications

There are four power supply units. Both AC and DC power supplies have 54 V output, PoE isolation, and load sharing. Power supplies vent to the rear of the chassis.

Empty power supply bays do not require a filler panel. You require a minimum of one installed power supply.

*** Note:**

Power supplies do not ship installed.

AC power supply

The following table provides the AC power supply specifications for VSP 8608:

Dimensions:	Height	1.63 inches (4.14 cm)
-------------	--------	-----------------------

Table continues...

	Width	4 inches (10.16 cm)
	Depth	17.2 (43.69 cm)
	Weight	5.4 pounds (2.45 kg)
Input voltage range		90 to 264 VAC
Input turn on (maximum)		87 VAC
Input frequency		47 to 66 Hz
Input current 240 VAC (typical)		11.9 Ampere (A)
Inrush transient (maximum)		30 A
Efficiency (typical)		95.6%
Thermal rating		767.7 BTU/hour
MTBF rating		450,000 hours
Power generated (maximum)		3,000 watts
Power dissipated (maximum)		225 watts

DC power supply

The following table provides the DC power supply specifications for VSP 8608:

Dimensions:	Height	1.63 inches (4.14 cm)
	Width	4 inches (10.16 cm)
	Depth	17.2 (43.69 cm)
	Weight	4.8 pounds (2.10 kg)
Input voltage range		-40 VDC minimum to -72 VDC maximum
Input current		75 A with input voltage great than 40 VDC
Cold start Inrush current (maximum)		100 A DC
Turn on delay (typical)		5 secs
Efficiency		88% for loads greater than 25% of full load 92% for loads 75% to 100% of full load
Thermal rating		639.8 BTU/hour
MTBF rating		400,000 hours
Power generated (maximum)		2,500 watts
Power dissipated (maximum)		187.5 watts

Cooling module specifications

Five fan modules are installed at the rear of the chassis. Each fan module contains two 80 mm fans. The chassis is designed for front-to-back airflow.

The following tables provide cooling module technical specifications.

Physical specifications	
Height:	9.3 inches (23.7 cm)
Width:	3.3 inches (8.35 cm)
Depth:	6.4 inches (16.3 cm)
Weight:	2.85 pounds (1.29 kg)

Electrical specifications		
Thermal rating:		482.8 BTU/hour
MTBF rating:		3,389,095 hours
Power dissipated	Maximum	141.5 watts
	Typical	106.4 watts

IOC and SF Module Technical Specifications

The VSP 8608 chassis provides eight I/O and control (IOC) module slots and three switch fabric (SF) slots

From left-to-right, slots 1 through 4 are designated for IOC modules, followed by slots SF1 through SF3 for switch fabric modules, and then slots 5 through 8 for IOC modules.

- IOC modules: slots 1 to 4 and slots 5 to 8
- SF modules: slots SF1, SF2, and SF3

IOC module slots 1 and 2 operate as primary and standby controller.

The following sections provide the specification details for the IOC and SF modules.

8624XT module specifications

The following table provides the 8624XT I/O and control (IOC) module specifications.

Physical specifications	
Height:	1.5 inches (3.9 cm)
Width:	9.8 inches (24.8 cm)
Depth:	17.0 inches (43.2 cm)
Weight:	8.15 pounds (3.70 kg)

Electrical specifications	
Thermal rating (typical):	763.0 BTU/hour
MTBF rating:	252,842 hours

Table continues...

Electrical specifications		
Connector type:		RJ-45 copper
Power dissipated	Maximum	297.3 watts
	Typical	223.6 watts

CPU, Memory specifications	
Freescale T1042 processor - 4 E5500 cores, 1.4GHz	
4-GB DDR3L DRAM on an SODIMM	
2 x 128-MB NOR Flash	
4-GB SD card	
1.5-GB buffer memory	

8616QQ module specifications

The following table provides the 8616QQ I/O and control (IOC) module specifications.

Physical specifications	
Height:	1.5 inches (3.9 cm)
Width:	9.8 inches (24.8 cm)
Depth:	17.0 inches (43.2 cm)
Weight:	7.9 pounds (3.58 kg)

Electrical specifications		
Thermal rating:		515.9 BTU/hour
MTBF rating:		279,330 hours
Connector type:		QSFP+
Power dissipated	Maximum	201.1 watts
	Typical	151.2 watts

CPU, Memory specifications	
Freescale T1042 processor - 4 E5500 cores, 1.4GHz	
4-GB DDR3L DRAM on an SODIMM	
2 x 128-MB NOR Flash	
4-GB SD card	
4-GB buffer memory	

8606CQ module specifications

The following table provides the 8606CQ I/O and control (IOC) module specifications.

Physical specifications	
Height:	1.5 inches (3.9 cm)
Width:	9.8 inches (24.8 cm)
Depth:	17.0 inches (43.2 cm)
Weight:	7.6 pounds (3.45 kg)

Electrical specifications		
Thermal rating:		502.9 BTU/hour
MTBF rating:		321,188 hours
Connector type:		QSFP28
Power dissipated	Maximum	196.1 watts
	Typical	147.4 watts

CPU, Memory specifications	
Freescale T1042 processor - 4 E5500 cores, 1.4GHz	
4-GB DDR3L DRAM on an SODIMM	
2 x 128-MB NOR Flash	
4-GB SD card	
4-GB buffer memory	

8600SF module specifications

The following table provides the 8600SF switch fabric module specifications.

Physical specifications	
Height:	1.5 inches (3.9 cm)
Width:	9.8 inches (24.8 cm)
Depth:	17.0 inches (43.2 cm)
Weight:	6.0 pounds (2.72 kg)

Electrical specifications		
Thermal rating:		394.4 BTU/hour
MTBF rating:		445,829 hours
Power dissipated	Maximum	153.7 watts
	Typical	115.6 watts

CPU, Memory specifications	
Freescale T1024 processor – 2 E5500 cores, 1.4GHz	
2-GB DDR3L DRAM on an SODIMM	
2 x 128-MB NOR Flash	

8624XS module specifications

The following table provides the 8624XS I/O and control (IOC) module specifications.

Physical specifications	
Height:	1.5 inches (3.9 cm)
Width:	9.8 inches (24.8 cm)
Depth:	17.0 inches (43.2 cm)
Weight:	8.0 pounds (3.63 kg)

Electrical specifications		
Thermal rating:		517.6 BTU/hour
MTBF rating:		264,683 hours
Connector type:		SFP+
Power dissipated	Maximum	201.8 watts
	Typical	151.7 watts

CPU, Memory specifications	
Freescale T1042 processor - 4 E5500 cores, 1.4GHz	
4-GB DDR3L DRAM on an SODIMM	
2 x 128-MB NOR Flash	
4-GB SD card	
1.5-GB buffer memory	

Chapter 5: Preinstallation checklist

Use the following checklist to guide you through the tasks required prior to installing the switch.

No.	Task	Description	✓
1	Site preparation: Identify a permanent location for the switch and ensure that it meets the physical, electrical, and environmental requirements.	See VSP 8608 technical specifications on page 37.	
2	Prepare the equipment rack or enclosure.	Ensure you have leveled and bolted the rack to the floor (and applied any braces to the rack, if necessary), see Installing the chassis in an equipment rack on page 47. Ensure there is adequate space to accommodate a 7U switch in a 19 inch equipment rack.	
3	Ensure network drops and power connections are within reach.	Ensure network drops are located within 5 feet (1.5 meters) of the permanent location. Ensure power cables are within reach of a power source. See VSP 8608 technical specifications on page 37.	
4	Prepare ground connection.	The ground lug ships with the chassis in the chassis installation kit. Attach the two-post compression ground terminal at the rear of the chassis. Obtain an 8-AWG ground wire with double ground lug to provide enclosure-to-site ground connection. * Note: Ensure the rack is grounded to the same grounding electrode used by the power service in the area. The ground path must be permanent and must not exceed 1 Ohm of resistance from the rack to the grounding electrode.	
5	Obtain the following cables: • RJ-45 console port cable • ESD cable	See Cable requirements on page 34.	

Table continues...

No.	Task	Description	✓
6	Unpack the equipment. * Note: The power supplies are shipped in a separate box.	Observe the electrostatic discharge precautions when you unpack the equipment. See Electrostatic Discharge Preventative Measures on page 34.	
7	Inspect and verify that the correct number of items shipped.	See Package contents on page 35. If any components are missing, go to the Extreme support website at http://www.extremenetworks.com/support/documentation/ .	
8	Verify the correct power supplies shipped for your switch. Ensure the power cord has the correct country-specific termination. * Note: The AC power supply does not ship with a power cable.	See AC and DC Power Supply Specifications on page 38 and Hardware Component Specifications and Part Numbers on page 12. + Tip: Order an extra power supply for redundancy purposes.	
9	Understand the various safety icons, as presented throughout the document. Review the safety messages before installing the switch.	The safety message appear at the beginning of each procedure. A definition of the safety symbols and a complete list of safety statements (including translations) can be found in the following Appendix, see Definitions of Safety Symbols on page 72.	

Chapter 6: Install the Switch and the Components

The following section describes the various installation tasks.

For more information about each component, see the following:

- I/O and control (IOC) module: [IOC Modules](#) on page 21
- Switch fabric (SF) module: [Switch fabric modules](#) on page 25.
- Cooling modules: [Cooling modules](#) on page 17.
- AC and DC power supply specifications: [AC and DC Power Supply Specifications](#) on page 38

Checklist for installing the switch

Use the following checklist to assist you with the tasks required to install and setup the switch.

*** Note:**

All slots are pre-installed with slot covers with the exception of IOC slot 1 and SF1.

Complete the tasks in the following order.

No.	Task	Description	✓
1	Determine the location of the chassis in the equipment rack.	See Installing the chassis in an equipment rack on page 47.	
	+ Tip: If you use the cable management tray, ensure you leave space in the rack above the chassis to accommodate the tray.		
	Mount the chassis in the equipment rack.		
2	Ground the chassis	See Grounding the chassis on page 51.	

Table continues...

No.	Task	Description	✓
3	Install the IOC and switch fabric modules.	See Installing an IOC or SF module on page 48.	
4	Install the power supplies.	<p>If you have AC power supplies, see Installing an AC power supply on page 55 and Connecting an AC power supply on page 57.</p> <p>If you have DC power supplies, see Installing a DC power supply on page 60.</p> <p>For more information, see AC and DC Power Supply Specifications on page 38.</p>	
5	Install the power supply cover and cable management tray.	See Installing the power supply cover and cable management tray on page 53.	
6	Check the LEDs to verify the installation.	For information about the various LED states, see Status LEDs on page 29.	

Installing the chassis in an equipment rack

Use the following procedure to install the chassis in a two-post or four-post equipment rack.

Before you begin

Acquire the following items:

- Clips to attach the chassis in the rack
- Phillips #2 screwdriver
- Before lifting the chassis, ensure the following:
 - Reduce the weight of the chassis as much as possible before you lift it.
 - Use a mechanical lift when one is available or use a shelf.
 - Ensure you have at least two people to lift the chassis.
 - Lift the chassis from the bottom.

About this task

The chassis can be installed in any standard 19-inch (48 cm) deep two-post or four-post equipment rack in a flush-mount configuration.

Tip:

If you use the cable management tray, ensure you leave space in the rack above the chassis to accommodate the tray.

Procedure

1. Determine where you want to install the chassis in the rack, and attach the clips.

 **Note:**

Ensure that the clips line up horizontally on either side of the rack vertical supports.

2. Use a mechanical lift or shelf to support the chassis, and hold it in place.
3. With the chassis lined up to the rack, insert the screws through the flange on the chassis to connect with the nuts in the clips.
4. Use a Phillips #2 screwdriver to secure the chassis in the rack.

Installing an IOC or SF module

 **Tip:**

You can hot swap an I/O and control (IOC) module or switch fabric (SF) module on an operational switch.

Before you begin

- Acquire the following items:
 - Phillips #2 screwdriver
 - Antistatic wrist strap
- Visually inspect the connectors for damage before you insert the module.

 **Important:**

If you insert a module with damaged connectors you will damage the switch.

About this task

The IOC modules in slots 1 and 2 operate as primary and standby controller, in addition to being used for network connectivity purposes. If slot 1 contains an IOC module, the LEDs are only operational on the primary module in slot 1; otherwise the module in slot 2 assumes the primary role. If slots 1 and 2 contain modules, during failover, the standby module in slot 2 takes the primary role. The switch can be powered up before or after you install the IOC modules.

To prevent damage, use the following best practices when installing or handling modules:

- Keep the modules on antistatic material when not in the chassis.
- Avoid touching the components or connector pins.
- Do not stack modules on top of each other outside of the chassis.
- Always keep a module or a filler panel installed to maintain safety compliance, proper cooling, and EMI containment.
- Do not overtighten screws or use a power tool to tighten screws.

 **Electrostatic alert:**

Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

Procedure

1. Locate a free IOC or SF slot:

*** Note:**

There are eight IOC slots located in slots 1 through 4 and 5 through 8, and three SF slots located in SF1 through SF3. Ensure slot 1 or slot 2 contains an IOC module.

2. To remove the filler panel, use a Phillips screwdriver to loosen the top and bottom captive screws, and slide the filler panel out.
3. To install the module, rotate the top lever up and the bottom lever down to the open position.

+ Tip:

The action levers are in the open position when the lever forms a 90° angle with the front of the module.

4. Slide the module into the chassis, and apply light hand pressure until the module connects with the backplane.
5. Rotate the top lever down and the bottom lever up until the levers are flush with the module, as shown in the following figures.

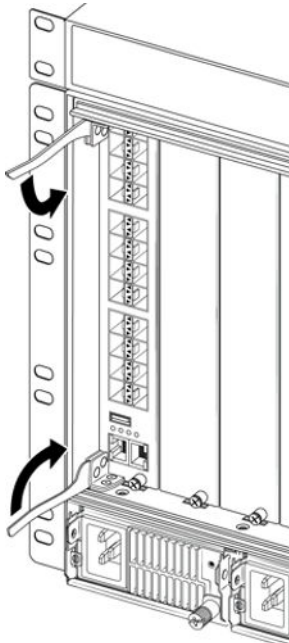


Figure 1: IOC module

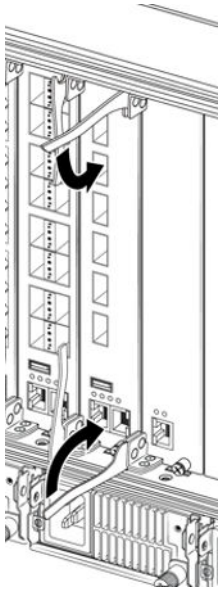


Figure 2: Switch fabric module

6. To secure the module in the chassis, use a Phillips screwdriver to tighten the top and bottom captive screws, as shown in the following figures.

! Important:

Do not overtighten the screws.

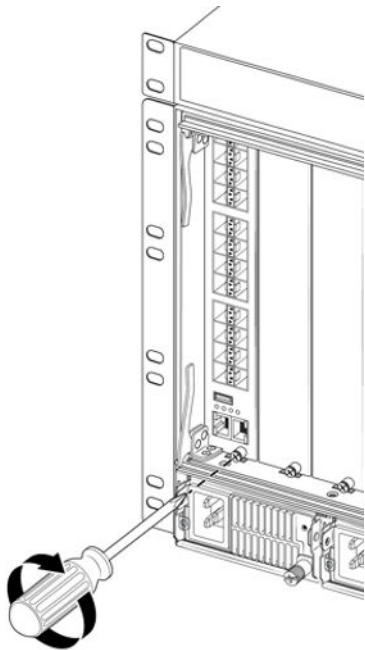


Figure 3: IOC module

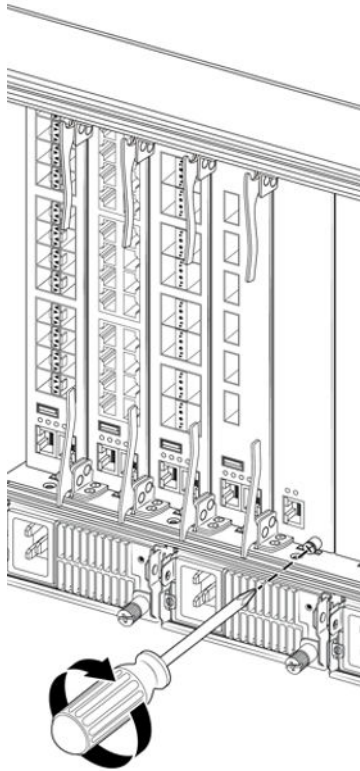


Figure 4: Switch fabric module

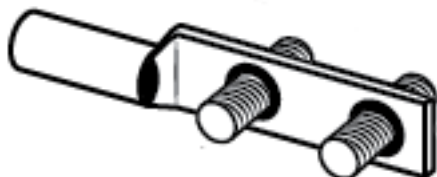
Grounding the chassis

Ground the chassis before you install power supplies or connect power and network cables to the system.

Before you begin

Gather the following:

- A two-hole cable lug that fits over the threaded ground posts (supplied), as shown in the following figure.



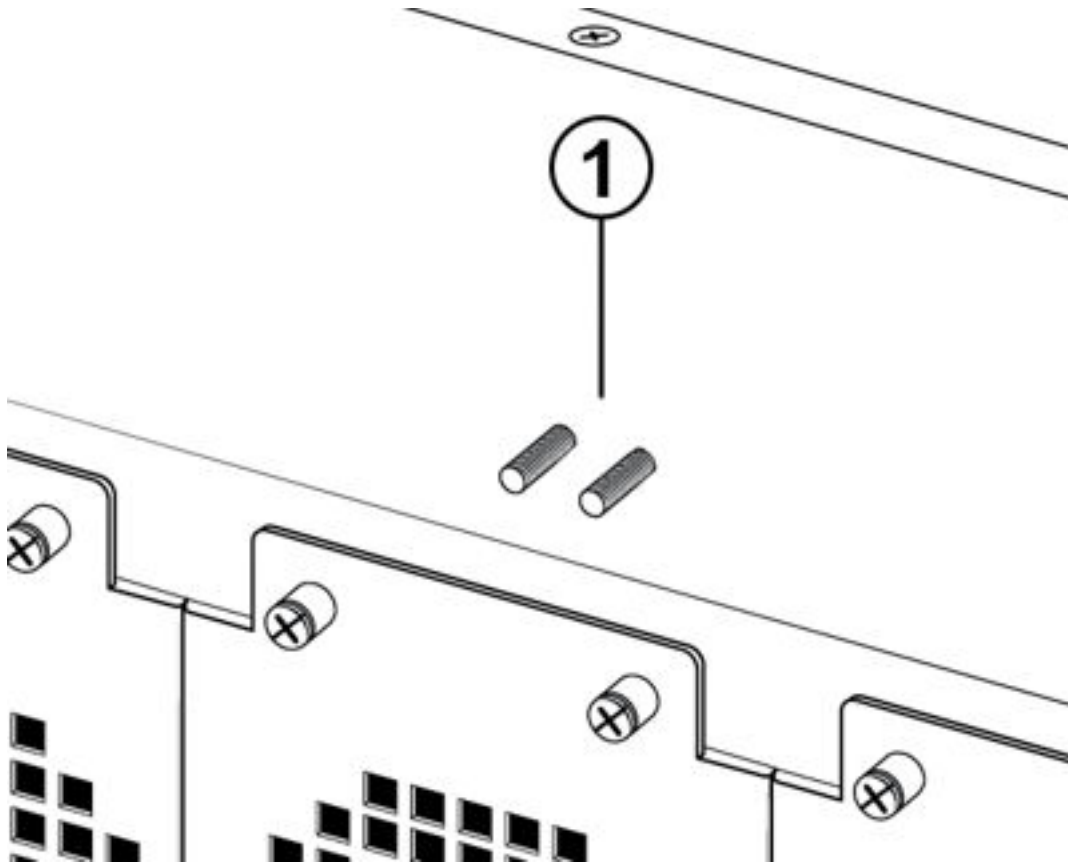
- A lock washer and nut for each ground post (supplied).

Install the Switch and the Components

- A #8-AWG ground wire that is long enough to connect to the ground point.
- A socket wrench or lock nut driver.
- A crimping tool.

Procedure

1. Locate the two-post compression ground at the rear of the chassis, as shown (label 1) in the following figure.



2. Crimp the two-hole cable lug onto the ground wire.
3. Attach the two-hole cable lug onto the ground posts, and use a lock washer and nut to secure to each post.
4. Bond the chassis ground cable to the single point ground.

Installing the power supply cover and cable management tray

About this task

Install the power supply cover after you install the required number of power supply units for your chassis.

+ Tip:

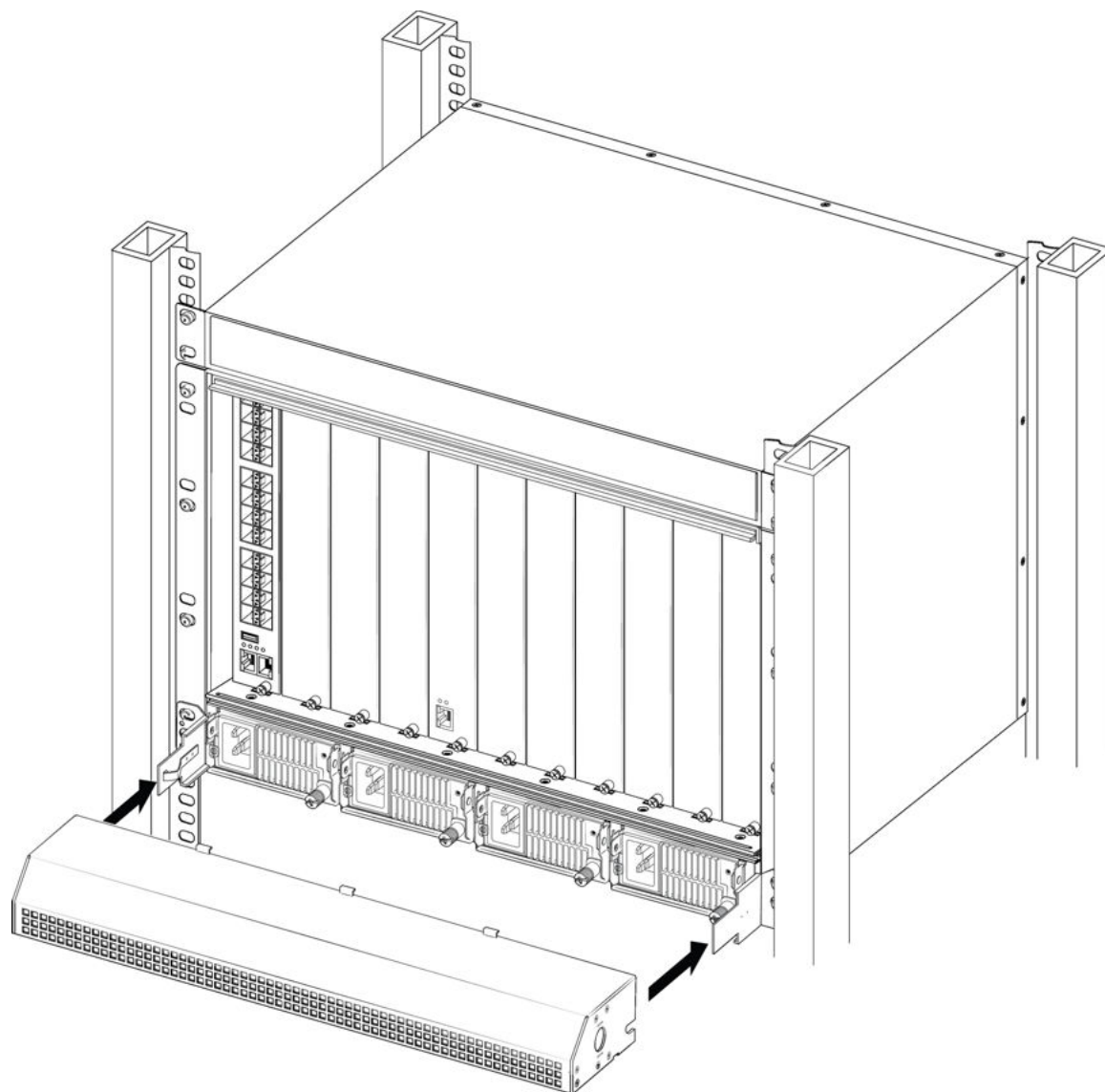
If you use the cable management tray, ensure you leave rack space above the chassis to accommodate the tray.

Before you begin

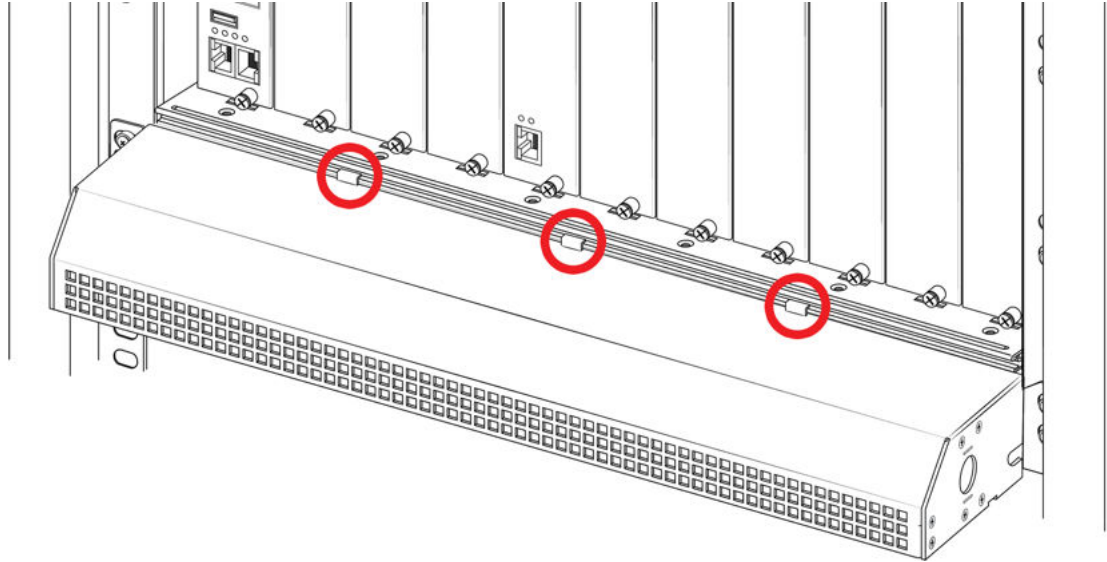
Acquire a Phillips #2 screwdriver.

Procedure

1. Install the power supply cover:
 - a. Attach the left bracket into the left side of the rack with the spring mechanism facing inward.
 - b. Insert two screws in the left bracket, and tighten until hand tight to secure the bracket on the rack.
 - c. Repeat Steps a and b to attach the right bracket to the right side of the rack with spring mechanism facing inward.
 - d. Slide the power supply cover into the left and right brackets until the spring on the brackets locks into the cover, as shown in the following figure.

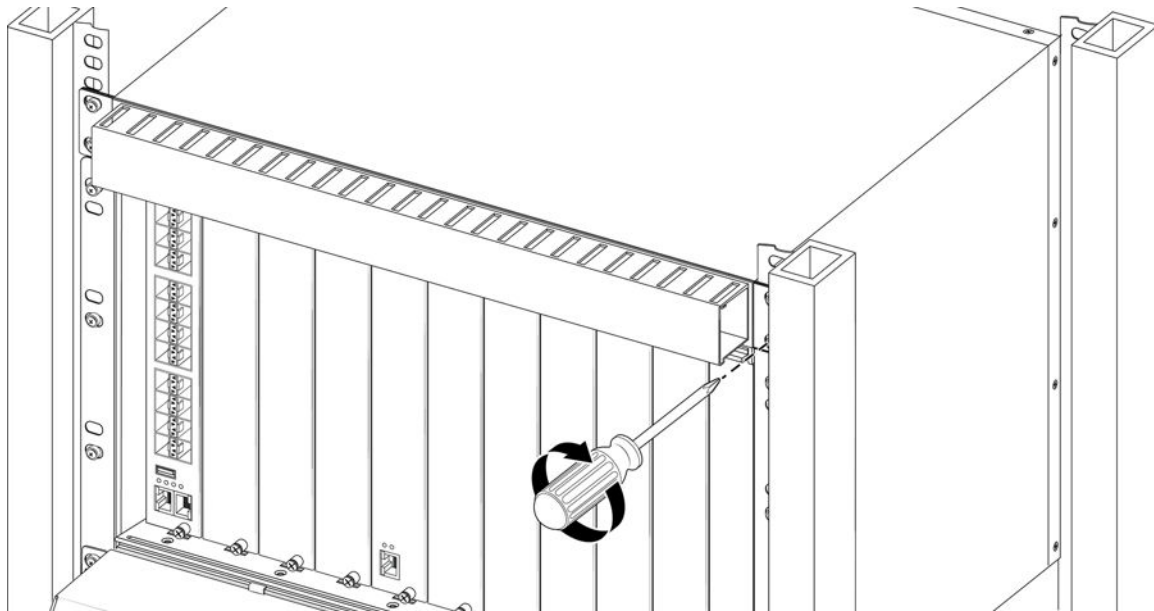


- e. Ensure the three tabs at the top of the cover rest on the metal bar of the chassis, as shown in the following figure.



2. Install the cable management tray:

Line up the cable management tray directly above the chassis, and secure the tray with two screws on each side, as shown in the following figure.



Installing an AC power supply

The AC power supply does not ship installed and must be ordered separately.

About this task

The chassis supports four 3,000 watt power supply units. Each power supply is self enclosed and vents directly to the rear of the chassis; therefore, empty power supply bays do not need a filler panel.

+ Tip:

If the chassis has more than one power supply installed, you can hot swap a power supply on an operational switch.

⚠ Electrostatic alert:

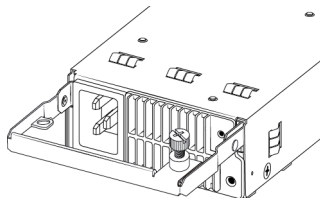
Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

⚠ Caution:

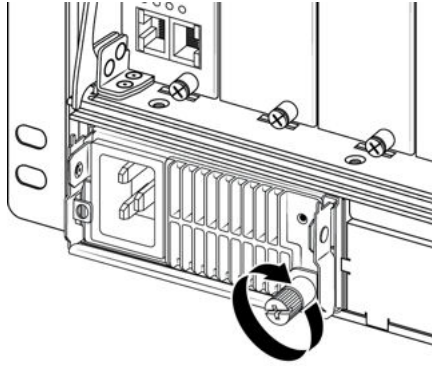
Use the power calculator to determine if your AC power supply units (PSU) provide the correct power capacity for your chassis configuration. In situations when your switch is heavily populated, it is preferred that you connect to a 240–VAC power source to provide each AC PSU with up to 3,000 watts. Or, in situations when your switch is lightly populated, you can connect to a 120–VAC power source to provide each AC PSU with approximately 1,400 watts.

Procedure

1. Locate the bay where you want to install the power supply unit.
2. Remove the metal cover plate.
3. Pull up on the lever bar until it reaches straight out, and forms a 90° angle with the front of the power supply, as shown in the following figure.



4. Slide the power supply into the chassis, and apply light hand pressure until the connector at the rear of the power supply connects with the backplane.
5. Push down on the lever bar to latch the power supply into place.
6. Turn the captive screw to secure the power supply to the chassis, as shown in the following figure.



7. Repeat these steps for each power supply.

Next steps

Proceed to connecting an AC power supply.

Connecting an AC power supply

After you have installed the AC power supply into the chassis, use the following procedure to attach the retention clip and connect the AC power cord to an AC power source.

Before you begin

- Obtain AC power cords to match the power service conventions for your country (one for each power supply).
- Locate the retention clip (supplied) for use with straight-ended power cords.

Danger:

Use AC power cords that have a ground wire (if applicable). If you use power cords without a ground wire, ensure the switch is properly grounded before powering on the unit. Without a proper ground, you are in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.

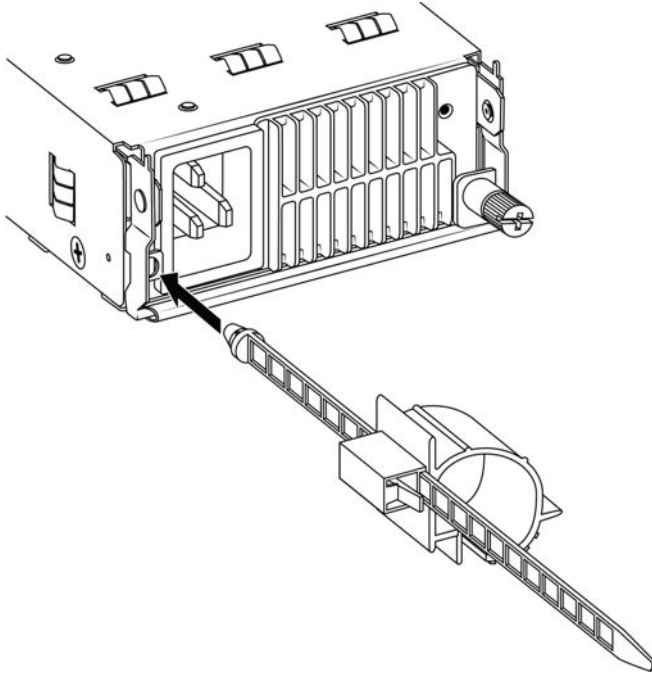
Caution:

Use the power calculator to determine if your AC power supply units (PSU) provide the correct power capacity for your chassis configuration. In situations when your switch is heavily populated, it is preferred that you connect to a 240-VAC power source to provide each AC PSU with up to 3,000 watts. Or, in situations when your switch is lightly populated, you can connect to a 120-VAC power source to provide each AC PSU with approximately 1,400 watts.

Procedure

1. Insert the end of the retention strap (with the anchor hooks) into the AC power supply, as shown in the following figure.

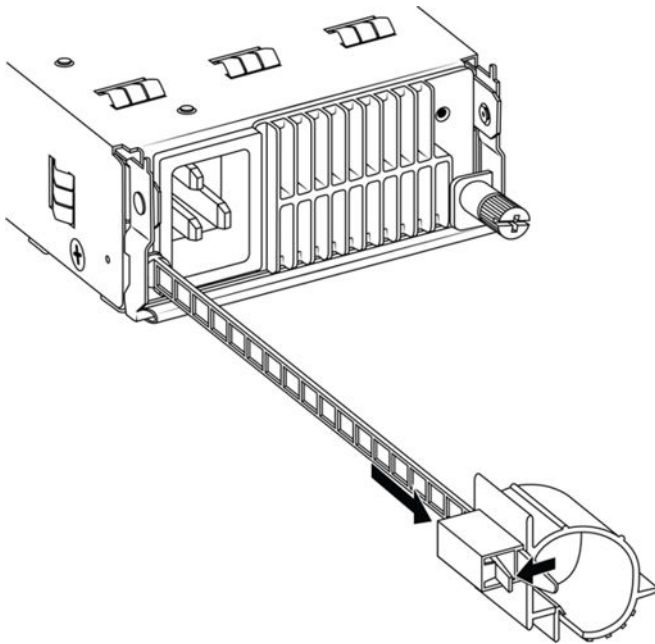
Install the Switch and the Components



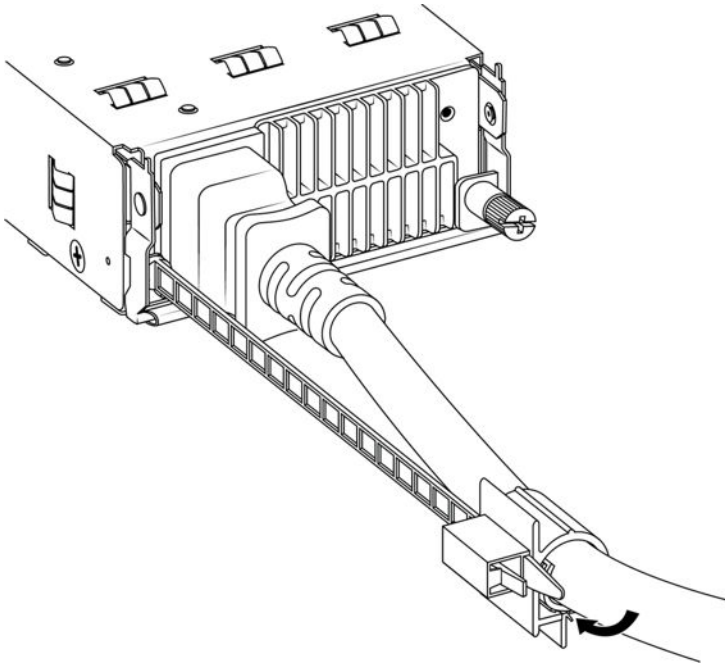
2. To extend the retention strap to its full length, press the tab on the side of the cable clamp, and pull the retention strap until the cable clamp reaches the end of the retention strap, as shown in the following figure.

+ Tip:

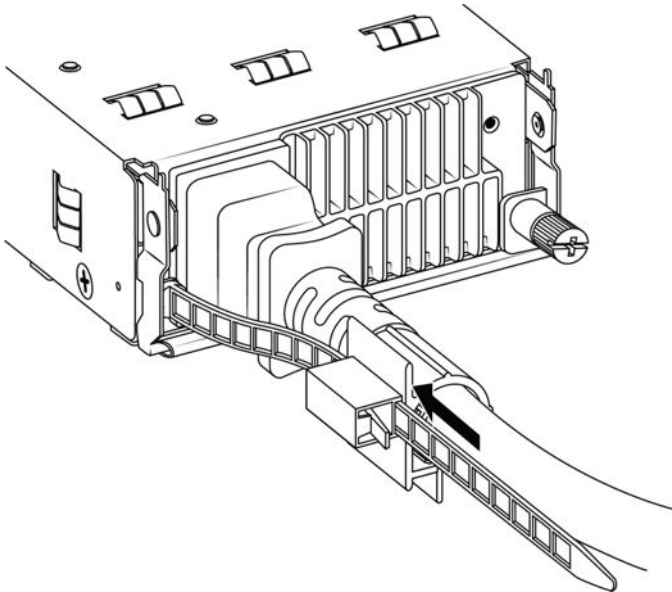
Power cable plugs vary in size so when you extend the retention strap to its full length, you can accommodate most plug sizes.



3. Connect the AC power cord to the power supply.
4. Place the cable clamp around the power cord, and squeeze the ring until the cable is snug in the clamp, as shown in the following figure.



5. Slide the clamp until it is snug against the power cord plug, as shown in the following figure.



6. Connect the other end of the cord to an AC power source.

! Important:

The chassis does not have an AC power switch. After you connect the power cord to an AC power outlet, the switch powers up immediately.

Result

Both LED lights for the AC power supply units show steady green when connected and operating normally.

Installing a DC power supply

The DC power supply does not ship installed and must be ordered separately. A DC power cord is also a separately ordered item.

About this task

The chassis supports four 2,500 Watt power supplies. Each power supply is self enclosed and vents to the rear of the chassis; therefore, empty power supply bays do not need a filler panel.

+ Tip:

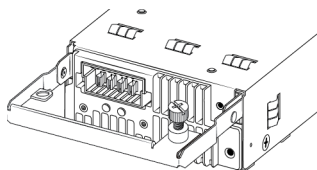
If the chassis has more than one power supply installed, you can hot swap a power supply on an operational switch.

! Electrostatic alert:

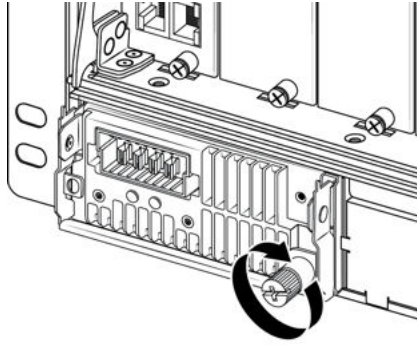
Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

Procedure

1. Locate the bay where you want to install the power supply.
2. Remove the metal cover plate.
3. Pull up on the lever bar until it forms a 90° angle with the front of the power supply, as shown in the following figure.



4. Slide the power supply into the chassis, and apply light hand pressure until the connector at the rear of the power supply connects with the backplane.
5. Push down on the lever bar to latch the power supply into place.
6. Use a screwdriver to tighten the captive screw to secure the power supply to the chassis, as shown in the following figure.

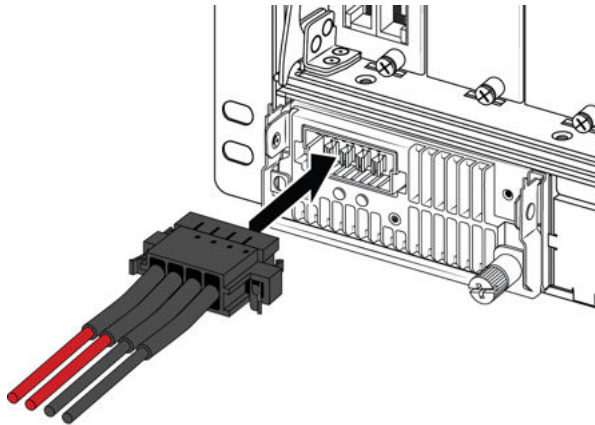


7. Establish a ground connection with the two ground posts at the rear of the chassis.
8. Use the following steps to connect the DC power cable to the power supply:

! Important:

The chassis does not have a power switch. When you connect the DC power source to the DC power supply, the switch powers up immediately.

- a. Position the DC power cable connector so that the red wires are connected to the left (positive) side of the DC outlet, as shown in the following figure.



- b. Push the connector until the clips lock into place.
- c. The installation electrician connects the other end of the power cord to the building power system.

Use the following for the building wire harness:

Pin1	Black	-DC
Pin2	Black	-DC
Pin3	Red	+DC
Pin4	Red	+DC

9. Repeat these steps for each power supply.

Install the Switch and the Components

Result

Both LED lights for the DC power supply units show steady green when connected and operating normally.

Chapter 7: Replace Components

This chapter provides information about replacing components in Virtual Services Platform 8600.

Replacing a power supply

Use the following procedure when you need to remove or replace an AC or DC power supply unit from the switch.

 **Tip:**

You can hot swap power supplies while the switch is operational.

Before you begin

Obtain a flat-blade screwdriver or Phillips #2 screwdriver, if needed to loosen the captive screw.

 **Electrostatic alert:**

Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

 **Caution:**

To turn off power to this device, you must disconnect the power cord. After the device has powered down, allow at least 30 seconds before you restore power. Otherwise, this device might produce a core file during the reset that can result in an extra delay during the boot process.

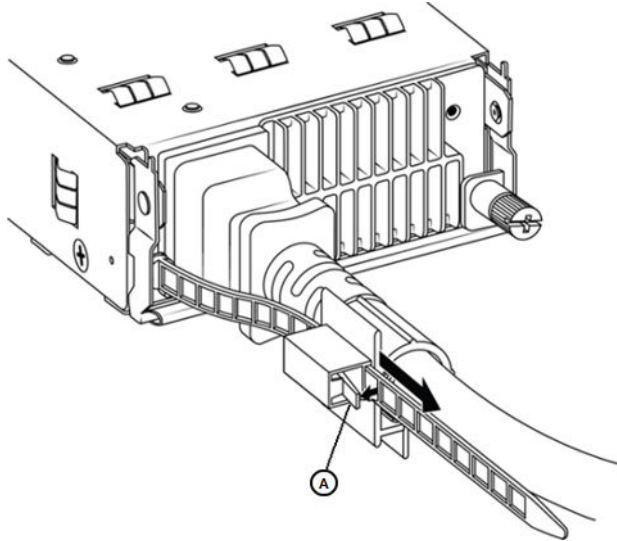
Procedure

1. For an AC power supply:

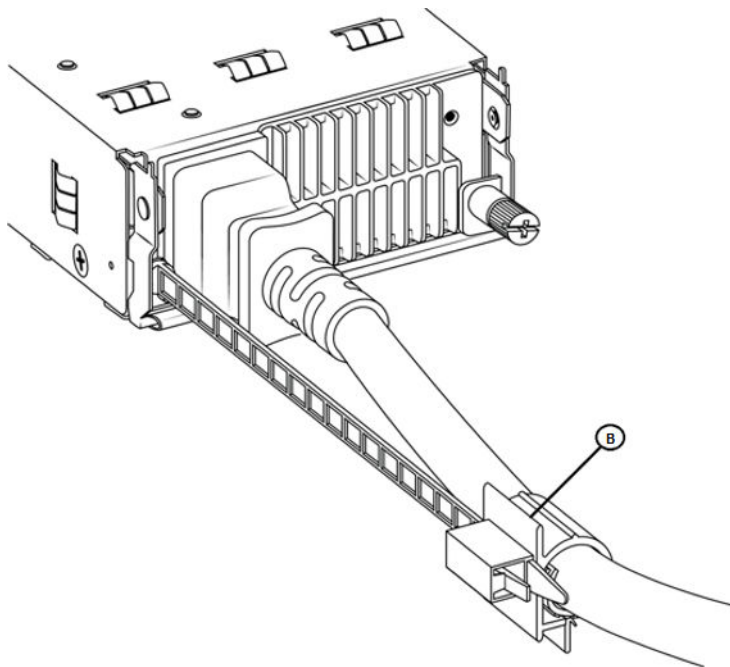
 **Note:**

- If your AC power cord is secured with a retention clip, continue to Step a; otherwise go to Step c.
- a. Press the tab (A) on the side of the cable clamp and slide the cable clamp away from the power cord plug until the cable clamp reaches the end of the retention strap, as shown in the following example.

Replace Components

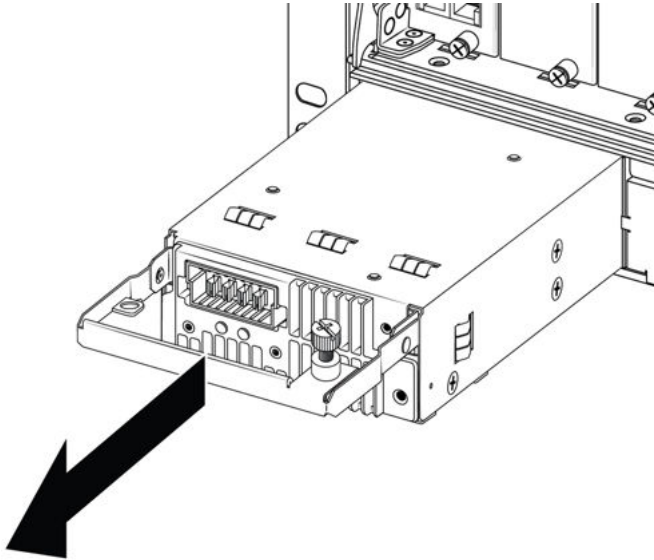


- b. To release the clamp around the power cord, press the tab (B) to the left, and remove the retention clip from the power cord, as shown in the following figure.



- c. Remove the AC power cord from the AC power supply.
 - d. Disconnect the other end of the power cord at the power source.
 - e. Turn the captive thumb screw to loosen (or use an appropriate screwdriver).
 - f. Continue to Step 3.
2. For a DC power supply:
 - a. Disconnect both ends of the power cord.

- b. Remove the grounding cable.
 - c. Turn the captive thumb screw to loosen (or use an appropriate screwdriver).
3. Pull up on the lever bar until it reaches straight out, and forms a 90° angle with the front of the power supply.
4. Grasp the lever bar, and pull the power supply out of the chassis, as shown in the following example.



5. If you are replacing the power supply, see the procedure for Installing an AC power supply or Installing a DC power supply.

*** Note:**

You do not require a filler panel if you are not replacing the power supply.

Replacing a cooling module

Use the following procedure when you need to replace a cooling module.

+ Tip:

You can hot swap the cooling modules.

Before you begin

You require the following items:

- Phillips #2 screwdriver
- Antistatic wrist strap

About this task

Danger:

Risk of personal injury

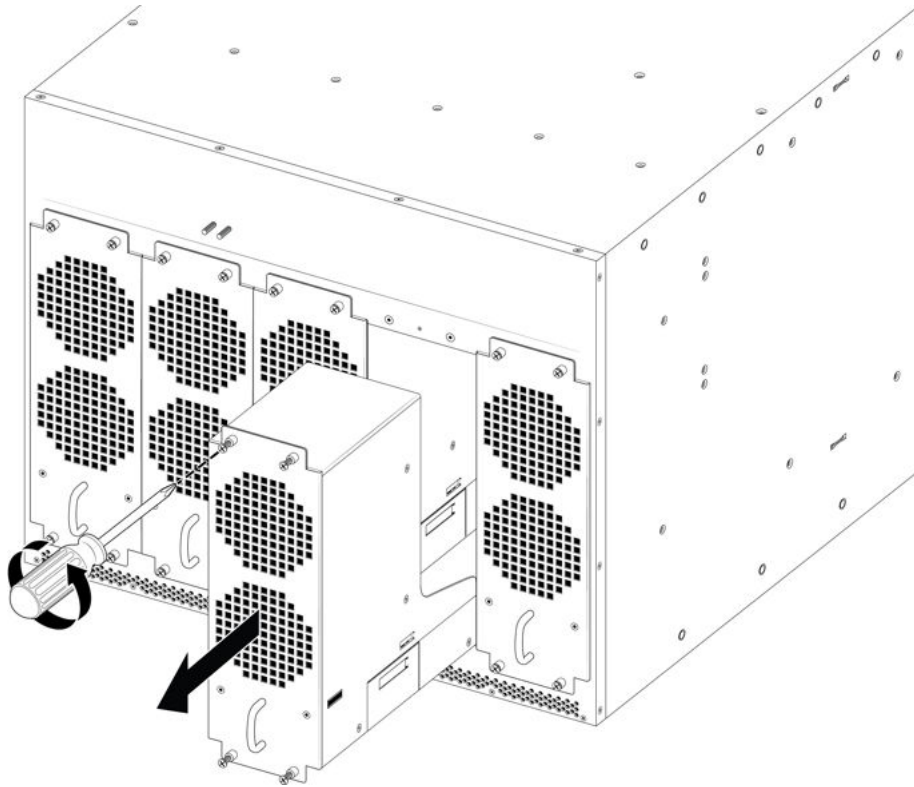
When you remove a cooling module, allow time for the fans to spin down before you fully withdraw the cooling module. Be careful to keep your fingers out of the fan blades.

Warning:

Do not operate a chassis for more than a few minutes with a missing cooling module. To ensure internal chassis air pressure is maintained and to avoid loss of traffic due to modules overheating and shutting down, leave a failed cooling module installed until you have a replacement.

Procedure

1. Locate the slot where you want to remove the cooling module.
2. Use the screwdriver to loosen the two captive screws on the top and the two at the bottom of the cooling module.



3. Use the handle to slide the cooling module out of the chassis.
4. Replace with a spare cooling module.

Replacing an IOC module

You can hot swap an I/O and control (IOC) module on an operational switch.

Before you begin

- Acquire the following items:
 - Phillips #2 screwdriver
 - Antistatic wrist strap
- Remove all cables from the network interface ports.

About this task

To prevent damage, use the following best practices when installing or handling IOC modules:

- Keep the modules on antistatic material when not in the chassis.
- Avoid touching the components or connector pins.
- Do not stack modules on top of each other outside of the chassis.
- Always keep a module or a filler panel installed to maintain safety compliance, proper cooling, and EMI containment.



Danger:

Risk of eye injury by laser

Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

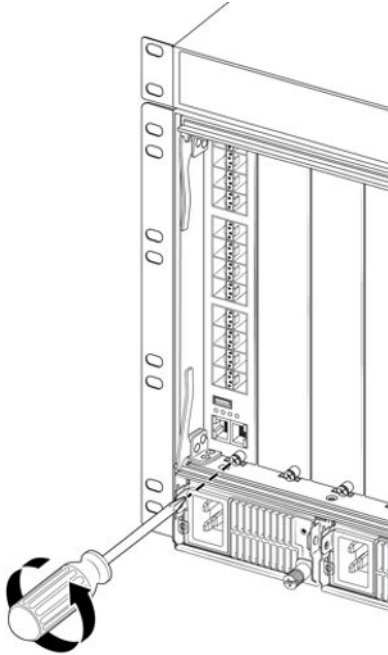


Electrostatic alert:

Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

Procedure

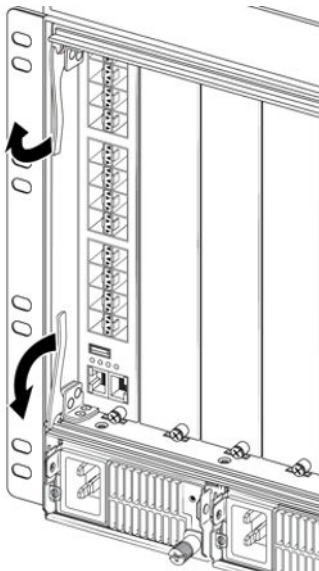
1. Use a Phillips screwdriver to loosen the top and bottom captive screws, as shown in the following figure.



2. Rotate the top lever up and the bottom lever down to the open position, as shown in the following figure.

+ Tip:

The action levers are in the open position when the lever forms a 90° angle with the front of the module.



3. Slide the IOC module out of the chassis.

Next steps

Replace with a spare IOC module or filler panel, see the procedure entitled Installing an IOC or SF module.

Replacing a switch fabric module

Tip:

You can hot swap a switch fabric module on an operational switch.

Before you begin

Acquire the following items:

- Phillips #2 screwdriver
- Antistatic wrist strap

About this task

There are three switch fabric slots. Use a filler panel in any slot that is not in use.

To prevent damage, use the following best practices when installing or handling switch fabric modules:

- Keep the modules on antistatic material when not in the chassis.
- Avoid touching the components or connector pins.
- Do not stack modules on top of each other outside of the chassis.
- Always keep a module or a filler panel installed to maintain safety compliance, proper cooling, and EMI containment.

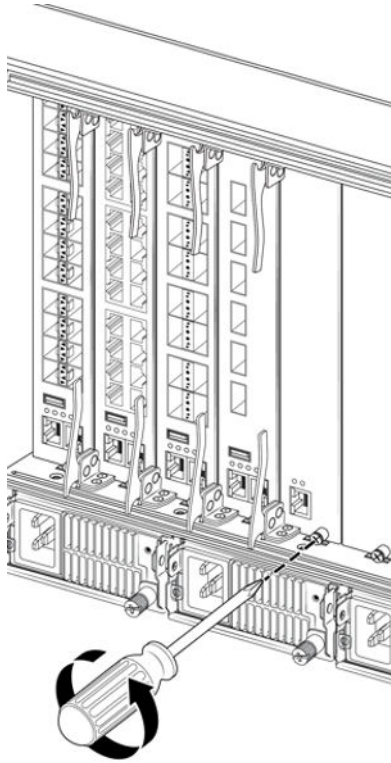
Electrostatic alert:

Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

Procedure

1. Use a Phillips screwdriver to loosen the top and bottom captive screws, as shown in the following figure.

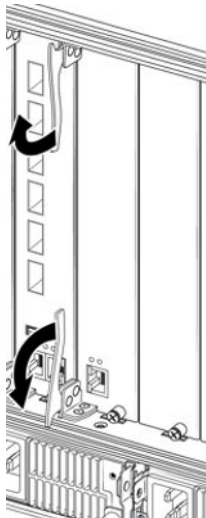
Replace Components



2. Rotate the top lever up and the bottom lever down to the open position, as shown in the following figure.

+ Tip:

The action levers are in the open position when the lever forms a 90° angle with the front of the module.



3. Slide the switch fabric module out of the chassis.

Next steps

Replace with a spare switch fabric module or filler panel, see the procedure for Installing a switch fabric module.

Chapter 8: Translations of safety messages

This chapter contains translations of the safety messages, which are found throughout this document.

Definitions of Safety Symbols

The following section describes the various precautionary statements used throughout the documentation. Pay attention to all precautionary statements to ensure your personal safety and to ensure the safe operation of the device.

Precautionary statements alert you to issues that require your attention. The following table describes the various types of precautionary statements, and provides translations in several languages.

 **Note:**

Not all safety statements appear in every document.







 Caution:	<p>Caution notices provide information about how to avoid possible service disruption, loss of data, or harm to software.</p> <p>ATTENTION La mention Attention fournit des informations sur les moyens de prévenir une perturbation possible du service et d'éviter d'endommager les produits.</p> <p>PELIGRO Los avisos de peligro proporcionan información sobre cómo evitar una posible interrupción del servicio, pérdida de datos o daño al software.</p> <p>ACHTUNG In diesen Hinweisen erfahren Sie, wie Sie Dienstunterbrechungen, Datenverlust oder Beeinträchtigungen der Software vermeiden können.</p> <p>MISE EN GARDE Les avis de mise en garde fournissent des informations indiquant comment éviter tout risque d'interruption de service, de perte de données ou de détérioration du logiciel.</p> <p>CUIDADO Avisos de cuidado fornecem informações sobre como evitar possíveis interrupções de serviço, perda de dados ou danos ao software.</p> <p>ATTENZIONE Un avvertimento di attenzione fornisce le informazioni su come evitare situazioni che potrebbero causare danni al software, perdita di dati o interruzione del servizio.</p>
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Table continues...

 Warning:	<p>Warning notices provide information about how to avoid harm to hardware or equipment.</p> <p>AVERTISSEMENT Les avis d'avertissements fournissent des informations indiquant comment éviter de détériorer le matériel ou un équipement.</p> <p>WARNUNG In Warnhinweisen erfahren Sie, wie Sie Beschädigungen der Hardware oder anderer Geräte vermeiden können.</p> <p>ADVERTENCIA Los avisos de advertencia proporcionan información sobre cómo evitar daño al hardware o al equipo.</p> <p>ADVERTÊNCIA Avisos de advertência fornecem informações sobre como evitar danos aos equipamentos.</p> <p>Avvertenza Un'avvertenza richiama fornisce le informazioni su come evitare situazione che potrebbero danneggiare l'hardware o l'apparecchiatura.</p>
 Danger:	<p>Danger notices provide information about how to avoid a situation or condition that can cause serious personal injury or death.</p> <p>La mention Danger fournit des informations sur les moyens de prévenir une situation ou une condition qui pourrait entraîner un risque de blessure grave ou mortelle.</p> <p>GEFAHR Gefahrenhinweise stellen Informationen darüber bereit, wie man Situationen oder Umständen verhindert, die zu schweren Personenschäden oder Tod führen können.</p> <p>PELIGRO Los avisos de Peligro brindan información acerca de cómo evitar una situación o condición que pueda causar lesiones personales graves o la muerte.</p> <p>PERIGO Avisos de perigo oferecem informações sobre como evitar uma situação ou condição que possa causar graves ferimentos ou morte.</p> <p>PERICOLO Le indicazioni di pericolo forniscono informazioni per evitare situazioni o condizioni che potrebbero causare gravi danni alle persone o il decesso.</p>

The following table describes other symbols that appear throughout the documentation (these types of notices are not translated):

 Note:	<p>A general note draws your attention to content that supplements the main text.</p>
 Important:	<p>An attention notice provides information about how to avoid a serious inconvenience during the installation and operation of Extreme Networks products.</p>
 Tip:	<p>A tip notice provides helpful information that can assist you with a particular procedure or other content.</p>

Electric shock voltage statement

 **Voltage:**

Risk of injury by electric shock

Before working on this equipment, be aware of proper safety practices and the hazards involved with electrical circuits. Use power cords that have a grounding wire. If you use power cords without a ground wire, ensure the switch is properly grounded before powering on the unit.

 **Voltage:**

Voltaje: Antes de trabajar en este equipo, infórmese acerca de las prácticas correctas de seguridad y de los peligros de los circuitos eléctricos. Utilice cables de alimentación que tengan un cable de conexión a tierra. Si utiliza cables de alimentación sin un cable de conexión a tierra, asegúrese de que el conmutador esté conectado a tierra correctamente antes de encender la unidad.

 **Voltage:**

Spannung: Denken Sie, bevor Sie mit der Arbeit an diesem Gerät beginnen, an entsprechende Sicherheitsvorkehrungen in Verbindung mit Stromkreisen. Verwenden Sie nur Stromkabel, die über Erdungsdrähte verfügen. Wenn Sie Stromkabel ohne Erdungsdrähte verwenden, müssen Sie vor dem Einschalten des Geräts sicherstellen, dass der Schalter richtig geerdet ist.

 **Voltage:**

Tension : Avant d'utiliser cet équipement, assurez-vous de connaître les mesures de sécurité appropriées, ainsi que les risques associés aux circuits électriques. Utilisez des cordons d'alimentation dotés d'un câble de mise à la terre. Si vous utilisez des cordons d'alimentation sans câble de mise à la terre, assurez-vous que le commutateur est correctement mis à la terre avant de mettre l'unité sous tension.

 **Voltage:**

Voltagem: Antes de operar o equipamento, esteja ciente das práticas de segurança e dos riscos envolvidos com os circuitos elétricos. Utilize cabos de energia que tenham fio terra. Se você utilizar cabos de energia sem um fio terra, verifique se a central está devidamente aterrada antes de ligar a unidade.

 **Voltage:**

Напряжение: Перед началом работы с этим оборудованием позаботьтесь о принятии надлежащих мер безопасности. Помните об опасностях, связанных с электрическими цепями. Всегда используйте кабели электропитания с заземляющим проводом. Если используются кабели питания без заземляющего провода, перед подачей питания на устройство убедитесь в том, что коммутатор надлежащим образом заземлен.

 **Voltage:**

□□:

在操作□台□□以前，□□必留意同□子□路有关的正确合理安全□践和危□因素。□可使用□地□的□源□。如果使用无地□的□源□，□□必在□□通□前保□交□机正确接地。

 **Voltage:**

DANGER

Risques de blessure par choc électrique

Avant de manipuler cet équipement, vous devez prendre connaissance des pratiques de sécurité appropriées et des risques associés aux circuits électriques. Utilisez uniquement des cordons d'alimentation possédant un conducteur de terre. Assurez-vous que le commutateur est correctement relié à la terre avant de mettre l'unité sous tension.

 **Voltage:**

GEFAHR

Verletzungsrisiko durch Stromschlag

Informieren Sie sich über entsprechende Sicherheitsmaßnahmen und die mit Stromkreisen verbundenen Gefahren, bevor Sie mit diesem Gerät arbeiten. Verwenden Sie nur Netzkabel mit Erdungspfad. Stellen Sie sicher, dass der Schalter ordnungsgemäß geerdet ist, bevor Sie das Gerät einschalten.

 **Voltage:**

PERIGO

Risco de ferimentos por choque elétrico

Antes de começar a trabalhar com o equipamento, esteja ciente das práticas de segurança adequadas e dos perigos inerentes a circuitos elétricos. Use apenas cabos de alimentação que tenham ligação à terra. Certifique-se de que o switch esteja devidamente aterrado antes de ligar o aparelho.

 **Voltage:**

PERICOLO

Rischio di scosse elettriche

Prima di utilizzare questa apparecchiatura, considerare le appropriate pratiche di sicurezza e i pericoli correlati ai circuiti elettrici. Utilizzare esclusivamente cavi di alimentazione dotati di un percorso per il collegamento a terra. Prima di attivare l'alimentazione dell'unità, accertarsi che l'interruttore sia adeguatamente collegato alla messa a terra.

Electric shock multiple cord danger statement

 **Voltage:**

Risk of injury by electric shock

This unit has more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.

 **Voltage:**

Risques de blessure par choc électrique

Cet appareil comporte plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques. Debrancher les cordons d'alimentation avant de faire le dépannage.

 **Voltage:**

Gefahr eines Stromschlags

Dieses Gerät verfügt mehr als ein Netzkabel. Ziehen Sie zur Vermeidung eines Stromschlags vor der Wartung alle Netzkabel ab.

 **Voltage:**

Rischio di infortuni elettrici

Questa unità è munita di più cavi di alimentazione. Per evitare scosse elettriche, scollegare tutti i cavi di alimentazione prima di eseguire la manutenzione.

 **Voltage:**

Risco de ferimentos por choque elétrico

Esta unidade tem mais de um cabo de alimentação. Desconecte todos os cabos de alimentação antes da manutenção para evitar choque elétrico.

 **Voltage:**

Riesgo de sufrir descargas eléctricas

Esta unidad tiene más de un cable de suministro de alimentación. Desconecte todos los cables de suministro de alimentación antes de realizar el servicio para evitar descargas eléctricas.

Use power cords with grounding path danger statement

 **Danger:**

Use AC power cords that have a ground wire (if applicable). If you use power cords without a ground wire, ensure the switch is properly grounded before powering on the unit. Without a

proper ground, you are in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.

 **Danger:**

Gefahr: Verwenden Sie nur AC-Netzkabel, die über Erdungsdrähte verfügen. Wenn Sie Stromkabel ohne Erdungsdrähte verwenden, müssen Sie vor dem Einschalten des Geräts sicherstellen, dass der Schalter richtig geerdet ist. Ohne die richtige Erdung besteht die Gefahr eines Stromschlags. Ohne Erdungsdraht zum Schalter werden hohe Emissionen freigesetzt.

 **Danger:**

Peligro: Utilice cables de alimentación de CA que tengan un cable de conexión a tierra (si corresponde). Si utiliza cables de alimentación sin un cable de conexión a tierra, asegúrese de que el conmutador esté conectado a tierra correctamente antes de encender la unidad. Sin una conexión a tierra correcta, usted corre peligro de recibir una descarga eléctrica. La ausencia de una puesta a tierra del conmutador puede provocar emisiones excesivas.

 **Danger:**

Utilisez des cordons d'alimentation CA dotés d'un câble de mise à la terre (le cas échéant). Si vous utilisez des cordons d'alimentation sans câble de mise à la terre, assurez-vous que le commutateur est correctement mis à la terre avant de mettre l'unité sous tension. En l'absence de mise à la terre adéquate, le risque de recevoir un choc électrique est réel. En l'absence de prise de mise à la terre liée au commutateur, des surtensions peuvent survenir.

 **Danger:**

Perigo: Utilize cabos de energia de CA que tenham um fio terra (se aplicável). Se você utilizar cabos de energia sem um fio terra, verifique se a central está devidamente aterrada antes de ligar a unidade. Sem um aterramento adequado, você corre o risco de tomar um choque elétrico. A falta de aterramento da central poderá acarretar descargas excessivas.

 **Danger:**

Опасно: Используйте кабели питания переменного тока с заземляющим проводом (в предусмотренных случаях). Если используются кабели питания без заземляющего провода, перед подачей питания на устройство убедитесь в том, что коммутатор надлежащим образом заземлен. Недостаточное заземление создает угрозу поражения электрическим током. На незаземленном коммутаторе может скапливаться избыточный заряд.

 **Danger:**

危⊠：

⊠使用⊠地⊠的交流⊠源⊠（如果适用）。如果使用无地⊠的⊠源⊠，⊠⊠必在⊠⊠通⊠前保⊠交⊠机正确接地。若未正确接好地⊠，操作人⊠可能有受到⊠⊠的危⊠。未将交⊠机接地可能会引起⊠量漏⊠。

Cooling module fan safety danger statement

 **Danger:**

Risk of personal injury

When you remove a cooling module, allow time for the fans to spin down before you fully withdraw the cooling module. Be careful to keep your fingers out of the fan blades.

 **Danger:**

DANGER

Risque de blessures corporelles

Lorsque vous retirez un module de refroidissement, prenez le temps de laisser le ventilateur ralentir avant de retirer complètement le module de refroidissement. Veillez à tenir vos doigts à l'écart des pales du ventilateur.

 **Danger:**

GEFAHR

Verletzungsgefahr

Wenn Sie ein Kühlmodul entfernen, warten Sie, bis die Lüfter zum Stillstand gekommen sind, bevor Sie das Modul komplett herausnehmen. Achten Sie darauf, dass Ihre Finger nicht die Lüfterflügel berühren.

 **Danger:**

PELIGRO

Riesgo de lesiones

Cuando retire un módulo de refrigeración, espere a que las aspas disminuyan sus revoluciones antes de retirar completamente el módulo de refrigeración. Tenga cuidado y mantenga los dedos fuera de las aspas del ventilador.

 **Danger:**

PERIGO

Risco de ferimentos

Quando remover um módulo de refrigeração, espere um pouco para que as pás parem de girar antes de retirar totalmente o módulo de refrigeração. Tome cuidado para manter os dedos longe das pás do ventilador.

 **Danger:**

PERICOLO

Rischio di lesion personali

In fase di rimozione del modulo di raffreddamento, prima di estrarlo completamente, attendere che le ventole rallentino. Fare attenzione a non avvicinare le dita alle lame della ventola.

Laser eye safety danger statement

 **Danger:**

Risk of eye injury by laser

Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

 **Danger:**

DANGER

Risques de blessure oculaire par lumière laser

L'équipement de fibres optiques peut émettre une lumière laser ou infrarouge nuisible à vos yeux. Ne regardez jamais en direction de fibres optiques ou d'un port connecteur. Supposez toujours que les câbles de fibres optiques sont connectés à une source de lumière.

 **Danger:**

GEFAHR

Risiko einer Augenverletzung durch Laser

Risiko einer Augenverletzung durch Laser Glasfasergeräte können Laserstrahlen oder ultraviolettes Licht aussenden, das Ihre Augen verletzen kann. Schauen Sie nie direkt in einen Glasfaserleiter oder Verbindungsanschluss. Gehen Sie immer davon aus, dass Glasfaserkabel mit einer Lichtquelle verbunden sind.

 **Danger:**

PELIGRO

Riesgo de lesión en los ojos por láser

El equipo de fibra óptica puede emitir una luz láser o infrarroja que dañe sus ojos. Nunca mire un puerto de fibra óptica o conector. Siempre asuma que los cables de fibra óptica están conectados a una fuente de luz.

 **Danger:**

PERIGO

O laser pode causar ferimentos no olho

O equipamento de fibra ótica pode emitir laser ou luz infravermelha que pode causar danos a sua vista. Nunca olhe para dentro da fibra ótica ou da porta do conector. Tenha sempre em mente que os cabos de fibra ótica estão ligados a uma fonte de luz.

 **Danger:**

PERICOLO

Rischio di ustioni agli occhi dovute al laser

Le apparecchiature con fibre ottiche possono emettere raggi laser o infrarossi in grado di provocare ferite agli occhi. Non guardare mai all'interno di una porta di connessione o una fibra ottica. Tenere sempre presente che i cavi a fibra ottica sono collegati a una sorgente luminosa.

Laser eye safety connector inspection danger statement

 **Danger:**

Risk of eye injury

When you inspect a connector, ensure that light sources are off. The light source used in fiber optic cables can damage your eyes.

 **Danger:**

DANGER

Risques de blessure oculaire

Assurez-vous que toutes les sources de lumière ont été désactivées avant de procéder au contrôle d'un connecteur. La source de lumière utilisée dans les câbles de fibres optiques risque de provoquer des lésions oculaires.

 **Danger:**

GEFAHR

Verletzungsrisiko der Augen

Achten Sie bei der Kontrolle der Anschlüsse darauf, dass die Lichtquellen abgeschaltet sind. Die für die Glasfaserkabel verwendeten Lichtquellen können Augenschäden hervorrufen.

 **Danger:**

PELIGRO

Riesgo de lesiones oculares

Cuando inspeccione un conector, controle que las fuentes de luz estén apagadas. La fuente de luz que utilizan los cables de fibra ótica puede ocasionar daños en la vista.

 **Danger:**

PERIGO

Risco de ferimento nos olhos

Ao inspecionar um conector, verifique se as fontes luminosas estão desligadas. A fonte luminosa usada nos cabos de fibra ótica pode causar danos a seus olhos.

 **Danger:**

PERICOLO

Rischio di lesioni agli occhi

Quando si esamina un connettore, assicurarsi che le sorgenti di luce siano spente. La sorgente di luce utilizzata nei cavi a fibre ottiche potrebbero danneggiare gli occhi.

Connector cleaning safety danger statement

 **Danger:**

Risk of eye injury

When you inspect a connector, ensure that light sources are off. The light source used in fiber optic cables can damage your eyes. To avoid getting debris in your eyes, wear safety glasses when you work with the canned air duster. To avoid eye irritation on contact, wear safety glasses when you work with isopropyl alcohol.

 **Danger:**

DANGER

Risques de blessure oculaire

Assurez-vous que toutes les sources de lumière ont été désactivées avant de procéder au contrôle d'un connecteur. La source de lumière utilisée dans les câbles de fibres optiques risque de provoquer des lésions oculaires. Pour éviter tout risque de projection vers les yeux, portez des lunettes de protection lorsque vous utilisez la bombe dépoussiérante à air comprimé. Pour éviter tout risque d'irritation oculaire, portez des lunettes de protection lorsque vous utilisez de l'alcool à 90°.

 **Danger:**

GEFAHR

Verletzungsrisiko der Augen

Achten Sie bei der Kontrolle der Anschlüsse darauf, dass die Lichtquellen abgeschaltet sind. Die für die Glasfaserkabel verwendeten Lichtquellen können Augenschäden hervorrufen. Zum Schutz vor Schmutzteilchen tragen Sie eine Schutzbrille, wenn Sie mit einem Pressluft-Spray

arbeiten. Zum Schutz vor Augenirritationen tragen Sie eine Schutzbrille, wenn Sie mit Isopropanol arbeiten.

 **Danger:**

PELIGRO

Riesgo de lesiones

Cuando inspeccione un conector, controle que las fuentes de luz estén apagadas. La fuente de luz que utilizan los cables de fibra óptica puede ocasionar daños en la vista. Cuando trabaje con el pulverizador de aire envasado, utilice gafas de seguridad para evitar el ingreso de residuos en los ojos. Utilice gafas de seguridad cuando trabaje con alcohol isopropilo para evitar irritación en los ojos.

 **Danger:**

PERIGO

Risco de ferimento nos olhos

Ao inspecionar um conector, verifique se as fontes luminosas estão desligadas. A fonte luminosa usada nos cabos de fibra óptica pode causar danos a seus olhos. Para evitar que seus olhos sejam atingidos por resíduos, use óculos de segurança ao trabalhar com lata de ar comprimido. Para evitar irritação dos olhos, use óculos de segurança ao trabalhar com álcool isopropílico.

 **Danger:**

PERICOLO

Rischio di lesioni agli occhi

Quando si esamina un connettore, assicurarsi che le sorgenti di luce siano spente. La sorgente di luce utilizzata nei cavi a fibre ottiche potrebbero danneggiare gli occhi. Per evitare l'accidentale introduzione di detriti negli occhi, indossare gli occhiali di sicurezza quando si lavora con un'impolveratrice ad aria compressa. Per evitare irritazioni oculari da contatto, indossare gli occhiali di sicurezza quando si lavora con alcool isopropilico.

Electrostatic discharge warning statement

 **Caution:**

Electrostatic discharge (ESD) can damage electronic circuits. Do not touch electronic hardware unless you wear a grounding wrist strap or other static-dissipating device.

 **Caution:**

ELEKTROSTATIKWARNUNG

Elektronische Schaltkreise können durch elektrostatische Entladung beschädigt werden. Berühren Sie elektronische Hardware nur, wenn Sie ein Erdungsarmband oder ein anderes Statik ableitendes Medium tragen.

 **Caution:**

ALERTA DE ELECTROESTÁTICA

Una descarga electroestática puede dañar los circuitos electrónicos. No toque el hardware electrónico a no ser que utilice una muñequera antiestática u otro dispositivo disipador de estática.

 **Caution:**

ALERTA CONCERNANT LES DÉCHARGES ÉLECTROSTATIQUES

Une décharge électrostatique (DES) peut endommager les circuits électroniques. Ne touchez pas le matériel électronique, à moins de mettre à votre poignet une bande de mise à la masse ou autre dispositif dissipant l'électricité statique.

 **Caution:**

ALERTA DE ELETROSTÁTICA

ESD pode danificar circuitos eletrônicos. Não toque em equipamentos eletrônicos a menos que esteja utilizando pulseira de aterramento ou outro dispositivo para dissipação de energia estática.

 **Caution:**

AVVISO ELETTROSTATICO

Le scariche elettrostatiche (ESD) possono danneggiare i circuiti elettronici. Non toccare i componenti elettronici senza aver prima indossato un braccialetto antistatico o un altro dispositivo in grado di dissipare l'energia statica.

Ensure adequate power source when using a single PSU

 **Caution:**

Use the power calculator to determine if your AC power supply units (PSU) provide the correct power capacity for your chassis configuration. In situations when your switch is heavily populated, it is preferred that you connect to a 240-VAC power source to provide each AC PSU with up to 3,000 watts. Or, in situations when your switch is lightly populated, you can connect to a 120-VAC power source to provide each AC PSU with approximately 1,400 watts.

 **Caution:**

Precaución: Utilice la calculadora de alimentación para determinar si las unidades de alimentación (PSU) de CA proporcionan la capacidad de alimentación correcta para su

configuración de chasis. Cuando el conmutador esté muy ocupado, es preferible que conecte una fuente de alimentación de 240 V de CA para proporcionarle a cada PSU de CA un máximo de 3000 vatios. En caso contrario, cuando el conmutador esté menos ocupado, puede conectarlo a una fuente de alimentación de 120 V de CA para proporcionarle a cada PSU de CA aproximadamente 1400 vatios.

 **Caution:**

Utilisez le calculateur afin de déterminer si les unités d'alimentation CA fournissent la capacité d'alimentation adéquate pour la configuration de votre châssis. Lorsque votre commutateur est très utilisé, il est préférable de réaliser une connexion à une source d'alimentation de 240 VAC afin de fournir jusqu'à 3 000 watts à chaque unité d'alimentation CA. Dans les situations où votre commutateur est peu utilisé, vous pouvez réaliser une connexion à une source d'alimentation de 120 VAC afin de fournir environ 1 400 watts à chaque unité d'alimentation CA.

 **Caution:**

Cuidado: Utilize a calculadora de energia para determinar se suas unidades de fonte de energia (PSU) de CA fornecem a capacidade energética correta para a configuração de seu chassis. Em situações em que sua central esteja expressivamente preenchida, é preferível conectar a uma fonte de energia de 240 VCA para fornecer a cada PSU de CA até 3.000 Watts. Ou, em situações em que sua central esteja parcialmente preenchida, você pode conectar a uma fonte de energia de 120 VCA para fornecer a cada PSU de CA aproximadamente 1.400 Watts.

 **Caution:**

Vorsicht: Verwenden Sie den Verbrauchsrechner, um zu ermitteln, ob Ihre AC-Netzteile (PSU) über die richtige Leistungskapazität für Ihre Chassiskonfiguration verfügen. Wenn Ihr Switch schon stark belegt ist, sollten Sie jedes einzelne AC-Netzteil vorzugsweise an eine 240-VAC-Stromquelle anschließen, die die einzelnen Netzteile mit bis zu 3000 Watt versorgt. Wenn Ihr Switch jedoch nur leicht belegt ist, können Sie ihn mit einer 120-VAC-Stromquelle verbinden, die jedes AC-Netzteil mit circa 1.400 Watt versorgt.

 **Caution:**

Осторожно: Чтобы определить, отвечают ли используемые блоки питания постоянного тока требованиям конфигурации шасси, используйте средство оценки потребляемой мощности. Если к используемому коммутатору подключено большое количество кабелей, желательно использовать источник питания на 240 В переменного тока, чтобы каждый блок питания переменного тока потреблял до 3 000 Вт мощности. Если к используемому коммутатору подключено небольшое количество кабелей, желательно использовать источник питания на 120 В переменного тока, чтобы каждый блок питания переменного тока потреблял до 1 400 Вт мощности.

 **Caution:**

小心：

□使用功率□算器来判定您的交流□源模□（PSU）提供的功率容量是否同您的机箱配置相符。如果您的交□机挂□□担□重，我□建□您最好□接一个240 VAC □源，□每个交流 PSU 提供

最多 3,000 瓦功率。反之，如果您的交换机挂断，您可以接一个 120 VAC 源，每个交流 PSU 提供最大 1,400 瓦功率。

Disconnect power cord caution statement

Caution:

To turn off power to this device, you must disconnect the power cord. After the device has powered down, allow at least 30 seconds before you restore power. Otherwise, this device might produce a core file during the reset that can result in an extra delay during the boot process.

Caution:

Precaución: Para desactivar la alimentación de este dispositivo, debe desconectar el cable de alimentación. Luego de que se haya apagado el dispositivo, espere 30 segundos como mínimo para restablecer la alimentación. En caso contrario, este dispositivo podría producir un archivo core durante el reinicio, lo que puede ocasionar una mayor demora en el proceso de arranque.

Caution:

Vorsicht: Um dieses Gerät abzuschalten, müssen Sie das Stromkabel entfernen. Nach der Abschaltung des Gerätes warten Sie mindestens 30 Sekunden bevor Sie es wieder einschalten. Sonst erzeugt dieses Gerät während der Rücksetzung ggf. eine Kerndatei, die den Startvorgang weiter verzögert.

Caution:

Avertissement : Vous devez débrancher le cordon d'alimentation pour éteindre l'alimentation de cet appareil. Une fois l'appareil débranché, patientez 30 secondes avant de rétablir l'alimentation. L'appareil pourrait sinon produire un fichier core au cours de la réinitialisation, risquant entraîner un retard supplémentaire au cours du processus de redémarrage.

Caution:

Cuidado: Para desligar esse dispositivo, você precisa desconectar o cabo de energia. Depois que o dispositivo for desligado, aguarde pelo menos 30 segundos antes de restaurar a energia. Caso contrário, o dispositivo poderá produzir um arquivo core durante a reinicialização que pode resultar em um atraso extra durante o processo de inicialização.

Caution:

Осторожно: Чтобы прекратить подачу электропитания на устройство, следует отсоединить кабель питания. Прекратив подачу электропитания на устройство, выждите не менее 30 секунд перед повторной подачей питания. В противном случае при перезагрузке устройства может быть создан файл дампа памяти, что дополнительно замедлит процесс загрузки.

 **Caution:**

小心：

要关闭此设备的电源，必须断开电源。在断开之后，等待至少30秒再恢复加电。否则，设备有可能在重启过程中生成一个核心文件，导致程序外延。

Class A electromagnetic interference warning statement

 **Warning:**

Risk of electromagnetic interference

This device is a Class A product. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users are required to take appropriate measures necessary to correct the interference at their own expense.

 **Warning:**

AVERTISSEMENT

Le périphérique est un produit de Classe A. Le fonctionnement de cet équipement dans une zone résidentielle risque de causer des interférences nuisibles, auquel cas l'utilisateur devra y remédier à ses propres frais.

 **Warning:**

WARNUNG

Dies ist ein Gerät der Klasse A. Bei Einsatz des Geräts in Wohngebieten kann es Störungen des Radio- und Fernsehempfangs verursachen. In diesem Fall muss der Benutzer alle notwendigen Maßnahmen ergreifen, die möglicherweise nötig sind, um die Störungen auf eigene Rechnung zu beheben.

 **Warning:**

ADVERTENCIA

Este es un producto clase A. El uso de este equipo en áreas residenciales puede causar interferencias nocivas, en cuyo caso, se requerirá que los usuarios tomen cualquier medida necesaria para corregir la interferencia por cuenta propia.

 **Warning:**

AVISO

Este dispositivo é um produto Classe A. Operar este equipamento em uma área residencial provavelmente causará interferência prejudicial; neste caso, espera-se que os usuários tomem as medidas necessárias para corrigir a interferência por sua própria conta.

 **Warning:****AVVISO**

Questo dispositivo è un prodotto di Classe A. Il funzionamento di questo apparecchio in aree residenziali potrebbe causare interferenze dannose, nel cui caso agli utenti verrà richiesto di adottare tutte le misure necessarie per porre rimedio alle interferenze a proprie spese.

Optical fiber damage warning statement

 **Warning:****Risk of equipment damage**

Do not crush fiber optic cable. If fiber optic cable is in the same tray or duct with large, heavy electrical cables, the weight of the electrical cable can damage the fiber optic cable.

 **Warning:****AVERTISSEMENT**

Risques d'endommagement de l'équipement

N'exercez pas de pression sur les câbles de fibres optiques. Ne placez pas de câbles de fibres optiques dans la même caisse ou dans le même fourreau que des câbles électriques lourds car leur poids risquerait de les endommager.

 **Warning:****WARNUNG**

Risiko von Geräteschäden

Das Glasfaserkabel darf nicht zerdrückt werden. Wenn sich ein Glasfaserkabel zusammen mit großen und schweren Elektrokabeln im gleichen Kabelkanal oder in der gleichen Führung befindet, kann es durch das Gewicht der Elektrokabel beschädigt werden.

 **Warning:****ADVERTENCIA**

Riesgo de daños en los equipos

Evite aplastar los cables de fibra óptica. Si el cable de fibra óptica se encuentra en la misma bandeja o conducto que otros cables eléctricos grandes y pesados, puede dañarse.

 **Warning:****AVISO**

Risco de danos ao equipamento

Não amasse o cabo de fibra ótica. Se o cabo de fibra ótica estiver na mesma bandeja ou duto com cabos elétricos longos e pesados, ele pode ser danificado pelo peso do cabo elétrico.

 **Warning:**

Avvertenza

Rischio di danno all'apparecchio

Non schiacciare o piegare il cavo a fibre ottiche. Se il cavo a fibre ottiche è posizionato in un vassoio o condotto con cavi elettrici pesanti e di grosse dimensioni, esso potrebbe essere danneggiato dal peso dei cavi elettrici.

Optical fiber connector damage warning statement

 **Warning:**

Risk of equipment damage

To prevent further contamination, clean fiber optic equipment only when you see evidence of contamination.

To prevent contamination, cover the optical ports of all active devices with a dust cap or optical connector.

To avoid the transfer of oil or other contaminants from your fingers to the end face of the ferrule, handle connectors with care.

 **Warning:**

AVERTISSEMENT

Risques d'endommagement de l'équipement

Pour éviter tout risque de nouvelle contamination, nettoyez uniquement le matériel en fibre optique lorsque les preuves de contamination sont avérées.

Pour éviter tout risque de contamination, assurez-vous que tous les ports optiques des périphériques sous tension sont protégés par un capuchon anti-poussière ou par un connecteur optique.

Manipulez les connecteurs avec précaution afin d'éviter toute application d'huile provenant de vos doigts ou d'autres contaminants sur l'extrémité de la ferrule.

 **Warning:**

WARNUNG

Risiko von Geräteschäden

Zur Vermeidung weiterer Verunreinigungen reinigen Sie die Glasfiber-Ausrüstung nur dann, wenn sie offensichtlich kontaminiert ist.

Zur Vermeidung von Verunreinigungen schützen Sie die optischen Ports aller aktiven Geräte mit einer Staubkappe oder einem optischen Steckverbinder.

Zur Vermeidung von Verunreinigungen des hinteren Muffenteils durch Öl von den Fingern oder durch andere Kontaminationsstoffe behandeln Sie die Anschlüsse vorsichtig.

 **Warning:**

ADVERTENCIA

Riesgo de daños en los equipos

Limpie los equipos de fibra óptica únicamente cuando existan rastros de contaminación para evitar diseminarla aun más.

Para evitar la contaminación, controle que los puertos ópticos de todos los dispositivos activos estén cubiertos con una tapa protectora o un conector óptico.

Maneje los conectores con cuidado para no contaminar la superficie de los casquillos con la grasa de los dedos ni otros contaminantes.

 **Warning:**

AVISO

Risco de danos ao equipamento

Para evitar contaminação futura, limpe o equipamento ótico apenas quando houver evidência de contaminação.

Para evitar a contaminação, verifique se as portas óticas de todos os dispositivos ativos estão cobertas com uma proteção contra pó ou conector ótico.

Para evitar a transferência de óleo ou outro agente contaminador de seus dedos para a extremidade final da ponteira, manuseie os conectores com cuidado.

 **Warning:**

Avvertenza

Rischio di danno all'apparecchio

Per evitare ulteriori contaminazioni, pulire l'apparecchio a fibre ottiche solo in presenza di evidente contaminazione.

Per evitare contaminazioni, assicurarsi che le porte ottiche di tutti i dispositivi attivi siano coperte da un tappo antipolvere o da un connettore ottico.

Per evitare il trasferimento di olio o di altri agenti contaminanti dalle dita alla parte finale della ghiera, maneggiare con cura i connettori.

Transceiver damage warning statement

 **Warning:**

Risk of equipment damage

Transceivers are keyed to prevent incorrect insertion. If the transceiver resists pressure, do not force it; turn it over, and reinsert it.

 **Warning:**

AVERTISSEMENT

Risques d'endommagement de l'équipement

Afin d'éviter tout risque d'insertion incorrecte, les modules SFP sont verrouillés. Si vous ne parvenez pas à insérer un module SFP, ne forcez pas. Retournez-le et renouvelez l'opération.

 **Warning:**

WARNUNG

Risiko von Geräteschäden

Die SFPs sind so konstruiert, dass ein falsches Einsetzen verhindert wird. Lässt sich ein SFP auch auf Druck hin nicht einsetzen, versuchen Sie nicht, es gewaltsam einzusetzen, sondern drehen Sie es um, und setzen Sie es erneut ein.

 **Warning:**

ADVERTENCIA

Riesgo de daños en los equipos

Los módulos SFP cuentan con cuñas que no permiten insertarlos de forma incorrecta. Si el módulo SFP opone resistencia a la presión, no lo fuerce; gírelo e insértelo nuevamente.

 **Warning:**

AVISO

Risco de danos ao equipamento

Os SFPs são chaveados para evitar inserção indevida. Se o SFP resistir à pressão, não o force; inverta e recoloque-o.

 **Warning:**

Avvertenza

Rischio di danni all'apparecchio

Gli SFP dispongono di chiavi in modo da evitarne l'inserimento errato. Se l'SFP resiste alla pressione, non forzarlo ma capovolgerlo e reinserirlo.

Stacking devices warning statement

 **Warning:**

When you mount this device in a rack, do not stack units directly on top of one another. You must secure each unit to the rack with appropriate mounting brackets. Mounting brackets cannot support multiple units.

 **Warning:**

Achtung:

Wenn diese Einheit in einem Rack montiert wird, muß ein gewisser Abstand zur nächsten Einheit gelassen werden. Jede Einheit muß mit geeignetem Befestigungsmaterial gesichert werden. Das Befestigungsmaterial ist nicht für die gleichzeitige Befestigung mehrerer Einheiten geeignet.

 **Warning:**

Si vous installez le module dans une baie, ne l'empilez pas directement sur un autre. Chaque module doit être fixé à sa propre baie à l'aide des supports de montage appropriés. Ces supports ne sont pas conçus pour résister à plusieurs modules.

 **Warning:**

Precaución:

Cuando monte este dispositivo en un bastidor, no apile las unidades directamente una encima de otra. Cada unidad debe fijarse en el bastidor con las abrazaderas de montaje adecuadas. Las abrazaderas de montaje no están diseñadas para sostener varias unidades.

 **Warning:**

Se il dispositivo viene installato in un rack, non impilare le unità direttamente una sull'altra. Ogni unità deve essere fissata al rack con le staffe di montaggio appropriate. Le staffe di montaggio non sono state progettate per supportare più unità.

 **Warning:**



警告: 在机架中安装此设备时, 请勿将多个部件叠放在机架中。必须用合适的安装托架将各个部件固定在机架中。安装托架无法支撑多个部件。

 **Warning:**



注意: この装置をラックに設置する場合は、ラック内のコネクタを直接積み重ねないようにしてください。各ユニットは専用の取り付けブラケットでラックに固定する必要があります。取り付けブラケットは複数のユニットを支えるようには設計されていません。

 **Warning:**



注意：在機箱中掛載此裝置時，請不要直接在機箱中的另一個裝置上直接堆放裝置。每一裝置都必須使用適當的掛載托架以固定在機架中。掛載托架不能用來支撐多個裝置。

Empty cooling module bay warning statement

 **Warning:**

Do not operate a chassis for more than a few minutes with a missing cooling module. To ensure internal chassis air pressure is maintained and to avoid loss of traffic due to modules overheating and shutting down, leave a failed cooling module installed until you have a replacement.

 **Warning:**

Warnung: Aktivieren Sie ein Chassis ohne Kühlmodul nur wenige Minuten. Bauen Sie ein defektes Kühlmodul erst aus, nachdem Sie über das Ersatzmodul verfügen. Auf diese Weise wird sichergestellt, dass der Luftdruck im Chassis erhalten bleibt und der Verkehr nicht infolge überhitzter Module unterbrochen und das Gerät abgeschaltet wird.

 **Warning:**

Advertencia: El chasis debe operarse solo por algunos minutos si a este le falta un módulo de refrigeración. Para asegurar que se mantenga la presión de aire interna del chasis y para evitar pérdida de tráfico debido a que los módulos se sobrecalientan y se apagan, deje un módulo de refrigeración defectuoso instalado hasta que consiga un reemplazo.

 **Warning:**

Avertissement : N'actionnez pas un châssis pendant plus de quelques minutes en l'absence d'un module de refroidissement. Afin de vous assurer du maintien de la pression de l'air dans le châssis interne et pour éviter toute perte de circulation liée à la surchauffe et à l'extinction des modules, laissez un module de refroidissement de secours installé jusqu'au remplacement de la pièce.

 **Warning:**

Aviso: Não opere um chassis por mais do que alguns minutos na ausência de um módulo de resfriamento. Para garantir que a pressão de ar interna do chassis seja mantida e para evitar perda de tráfego devido ao superaquecimento e desligamento de módulos, deixe um módulo de resfriamento com falha instalado até ter um substituto.

 **Warning:**

Предупреждение: Не следует эксплуатировать шасси со снятым модулем охлаждения дольше нескольких минут. Чтобы поддержать стабильность воздушного давления внутри

шасси и избежать потерь трафика из-за перегрева и отключения модулей, оставляйте неисправный модуль охлаждением на месте до тех пор, пока не найдете ему замену.

 **Warning:**

警告:

如果机箱里没有散热模块，请勿操作机箱超过几分钟。为了保持机箱内部的气流，避免模块过热和关闭导致的气流丢失，保留已安装故障散热模块直到完成更换。

Empty module slot warning statement

 **Warning:**

Keep the metal cover plate in place over empty module slots. An empty module slot allows air into the chassis, which reduces the negative pressure in the chassis. This reduces airflow to the installed modules.

 **Warning:**

Avertissement:

Maintenez la plaque de protection métallique en place sur les fentes du module vide. Une telle fente laisse l'air entrer dans le châssis, réduisant ainsi la pression négative qui y règne, ce processus diminue le flux d'air dans les modules installés.

 **Warning:**

Advertencia:

Mantenga la placa cobertora de metal en su lugar sobre las ranuras vacías del módulo. Una ranura vacía del módulo permite el ingreso de aire al chasis, lo que reduce la presión negativa en el chasis. Esto reduce el flujo de aire hacia los módulos instalados.

 **Warning:**

Aviso:

Mantenha a placa de cobertura de metal posicionada sobre os slots vazios do módulo. Um slot vazio do módulo permite a entrada de ar dentro do chasis, o que reduz a pressão negativa no chasis. Isso reduz o fluxo de ar para os módulos instalados.

 **Warning:**

Предупреждение:

Не снимайте металлические накладки с пустых слотов для модулей. Сквозь эти слоты в шасси проникает воздух, что снижает отрицательное давление внутри шасси. Это ухудшает вентиляцию установленных модулей.

 **Warning:**

 **警告:**

务必将金属盖板放在闲置的模块插槽上。模块插槽空置会使空气流入机箱，导致机箱里的负压降低。这会使流向已安装模块的气流减少。

Appendix A: Regulatory and Compliance Information

Federal Communications Commission (FCC) Notice

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

 **Note:**

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada Notice

This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Class A ITE Notice

WARNING: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Klasse A ITE Anmerkung

WARNHINWEIS: Dieses Produkt zählt zur Klasse A (Industriebereich). In Wohnbereichen kann es hierdurch zu Funkstörungen kommen, daher sollten angemessene Vorkehrungen zum Schutz getroffen werden.

Product Safety

This product complies with the following: UL 60950-1, FDA 21 CFR 1040.10 and 1040.11, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, EN 60825-1, EN 60825-2, IEC 60950-1, 2006/95/EC.

Produktsicherheit

Dieses Produkt entspricht den folgenden Richtlinien: UL 60950-1, FDA 21 CFR 1040.10 and 1040.11, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, EN 60825-1, EN 60825-2, IEC 60950-1, 2006/95/EC.

Korea EMC Statement

이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

Electromagnetic Compatibility (EMC)

This product complies with the following: FCC 47 CFR Part 15 (Class A), ICES-003 (Class A), EN 55032 (Class A), EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 32 (Class A), VCCI V-3, 2004/108/EC (EMC Directive)

Elektro-magnetische Kompatibilität (EMC)

Dieses Produkt entspricht den folgenden Richtlinien: FCC 47 CFR Part 15 (Class A), ICES-003 (Class A), EN 55022 (Class A), EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR 32 (Class A), VCCI V-3, 2004/108/EC (EMC Directive)

VCCI Notice

This is a class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

BSMI EMC Statement — Taiwan

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

警告使用者：

此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻擾動，

在此種情況下，使用者會被要求採取某些適當的對策。

CCC EMC Statement — China

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

警告: 此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取切实可行的措施。

Battery Warning — Taiwan

警告

如果更換不正確之電池型式會有爆炸的風險，
請依製造商說明書處理用過之電池。

Battery Notice

Warning:

This product contains a battery used to maintain product information. If the battery should need replacement it must be replaced by Service Personnel. Please contact Technical Support for assistance.

Risk of explosion if battery is replaced by an incorrect type. Dispose of expended battery in accordance with local disposal regulations.

Avertissements: Ce produit renferme une pile servant à conserver les renseignements sur le produit. Le cas échéant, faites remplacer la pile par le personnel du service de réparation. Veuillez communiquer avec l'assistance technique pour du soutien.

Il y a risque d'explosion si la pile est remplacée par un type de pile incorrect. Éliminez les piles usées en conformité aux règlements locaux d'élimination des piles.

Restriction of Hazardous Substances

For the latest information about the presence of substances defined by the RoHS (Restriction of Hazardous Substances) directive in Taiwan (Republic of China) and China, see <http://www.extremenetworks.com/support/documentation/restriction-hazardous-substances/>.

Hazardous Substances

This product complies with the requirements of Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

European Waste Electrical and Electronic Equipment (WEEE) Notice



In accordance with Directive 2012/19/EU of the European Parliament on waste electrical and electronic equipment (WEEE):

1. The symbol above indicates that separate collection of electrical and electronic equipment is required.
2. When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
3. It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
4. It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated. For information about the available collection system, please contact Extreme Networks Customer Support at +353 61 705500 (Ireland).

Safety

Compliant with IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, UL 62950-1, 2nd Ed. 2011, CSA C22.2 No. 60950-1-07, 2nd Ed. 2011

Fabric Connect

Fabric Connect is an Ethernet-based, industry-standard (IEEE 802.1aq) that provides network wide end-to-end virtualization. With Fabric Connect, you can have thousands of virtualized service instances at any point in the network.

Gigabit Ethernet (GbE)

Ethernet technology with speeds up to 100 Gbps.

IOC module

An I/O and control (IOC) module provides networking connectivity with controller capabilities. There are different port media types (copper or optical) in various form factors or line rates.

Out of Band (OOB)

Network dedicated for management access to chassis.

Power over Ethernet (PoE)

The capacity of a switch to power network devices, according to the 802.3af standard, over an Ethernet cable. Devices include IP phones, Wireless LAN Access Points (WLAN AP), security cameras, and access control points.

QSFP+

A hot pluggable, quad small form-factor pluggable plus (QSFP+) transceiver, which is used in 40 Gbps and 4x10 Gbps Ethernet applications. 4x10 Gbps requires channelization support.

QSFP28

A hot pluggable, quad small form-factor pluggable 28 (QSFP28) transceiver, which is used in 100 Gbps and 4x25 Gbps Ethernet applications. 4x25 Gbps requires channelization support. It is similar in physical appearance to QSFP+ transceivers.

SFP

A hot pluggable, small form-factor pluggable (SFP) transceiver, which is used in Ethernet applications up to 1 Gbps.

SFP+

A hot pluggable, small form-factor pluggable plus (SFP+) transceiver, which is used in Ethernet applications up to 10 Gbps. It is similar in physical appearance to SFP transceivers.